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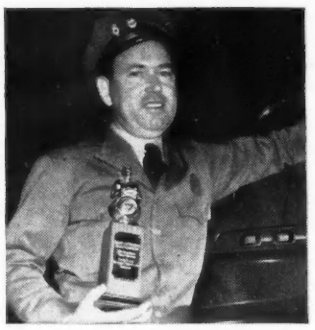
COMMERCIAL CAR JOURNAL
THE MAGAZINE FOR FLEET OPERATORS

Merry Christmas

from REO
makers of Gold Comet powered trucks

Meet these National Truck Roadeo winners! Left to right: Norman Hulker, Claxon Truck Lines, Inc., Frankfort, Ky.—3rd in Tractor, tandem-axle, semi-trailer class. Guern Royster, P.I.E., Oakland, Calif., 2nd in Tractor, single-axle, semi-trailer class. Albert Pomahatch, Merchants Motor Freight, Inc., St. Paul, Minn.—1st in Tractor, single-axle, semi-trailer class. Kenneth A. Folck, Lee and Eastes, Inc., Portland, Ore.—2nd in Straight truck class.

ABOVE—J. Clark Gilbert, Inland Motor Freight, Spokane, Washington—3rd in Tractor, single-axle, semi-trailer class.



LEFT—A. E. Harris, Great Southern Trucking Company, Jacksonville, Fla.—3rd in Straight truck class.

AGAIN—

The Choice of Roadeo Champions!

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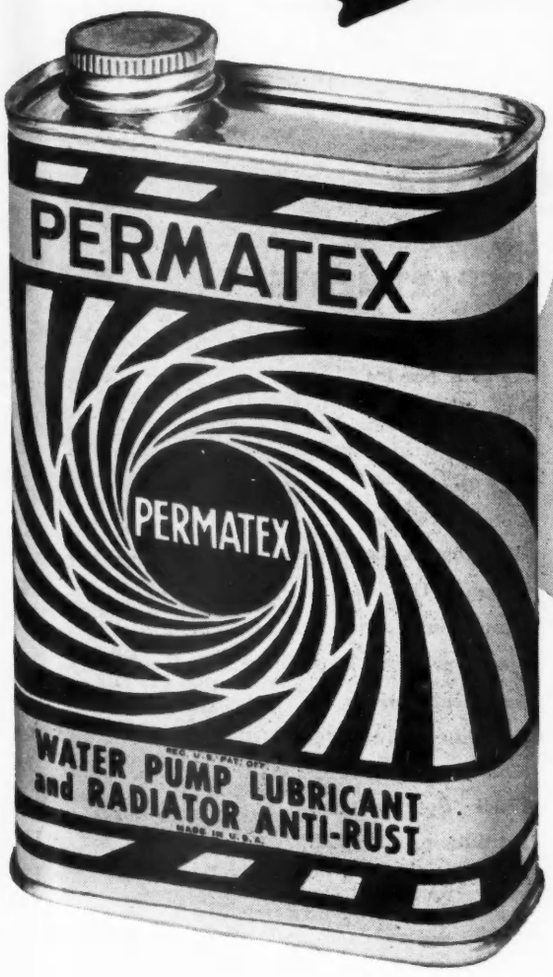

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COMMERCIAL CAR JOURNAL
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JOURNAL

CCJ

READER DIGEST

The Driver . . . Key Man in PR

One of the greatest weaknesses in the truck and bus transportation industry today is public relations. It is weak. It is inadequate. There are exceptions, of course. Railway Express, for one, has done, and is doing, an excellent job. This article explains some of the fundamental principles. It should be "must" reading for all. See Page 51.

Viscosity, Viscosity Index & Pour Point

Three basic properties of lubricating oil determine in part its value to you as a fleet operator. Viscosity is a measure of resistance to flow. Viscosity index indicates an oil's flow characteristics over a wide span of temperatures, while pour point defines the lowest temperature at which the oil will flow. See Page 54.

Capital Transit "Housecleans" 15 Buses Daily

Vehicle cleanings may be a necessary evil but it costs money. Capital Transit, for example, spends about a half million dollars annually in labor alone for cleaning its 900 buses. As a result, this property made a scientific study of this procedure and came up with some radical changes. One was the formation of a mobile cleaning gang which, even before it completed one circuit through the six garages, has come up with some unusual results. See Page 60.

ATA Convention

The American Trucking Associations, meeting in Chicago in October, introduced a new highway program designated as "Project Adequate Roads" and designed to accelerate road building throughout the nation. More than 1800 registrants heard representatives from a wide range of industries outline suggestions or improving public relations, expanding commercial transport, cutting transportation costs. See Page 64.

SAE National Meeting

The Transportation, Fuels and Lubricants, Diesel Engine sections of SAE met in Chicago in October to hear a battery of eight technical papers ranging from automatic transmissions to new power booster fuels. The Transportation Section, under the Chairmanship of F. B. Lautzenhiser, took a look at legislative developments, new powerplants for commercial transport, suggestions for improving highway transportation. C. F. Kettering spoke at the joint dinner. See Page 72.

Merry Christmas

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Lubricants and Fuels
FOR THE TRUCKING INDUSTRY

CONFERENCE CORNER

PRESENTING THE EXPERTS' VIEWPOINTS ON TIMELY SUBJECTS OF INTEREST TO FLEETS

Subject: Accident Costs

by E. J. Emond
Director of Automotive Safety
Armour and Company

The real reason for obtaining an accurate picture of the cost of automotive accidents is that accidents represent waste, and good management is constantly striving to eliminate the causes of waste. A company's best work toward eliminating the causes of waste is done when the costs are known and properly understood.

It may seem strange that so little has been done to isolate fleet accident costs in all the years we have been operating motor vehicles, but it is not strange when we reaalize that industrial accident costs also have never been clearly isolated—and industrial accidents have been with us for many more years than fleet accidents.

Insurance charges are commonly based on the actual accident experience of each individual fleet But insurance premiums represent only a portion of total accident costs.

From what we know already, having made preliminary studies over the past few years, accident costs are usually far greater than the average person thinks.

Finally, as automotive safety engineers, it is part of our job to determine as accurately as possible, what the automotive accidents in our respective fleets cost. If we are to gain the support of our bosses in fleet accident prevention, we must be able to show management how much money is literally being thrown away through the occurrence of accidents. Once management is aware of this waste—as expressed in accident cost figures—they will want us to develop and institute whatever steps are necessary to cut down the accidents.

The accounting department of a company probably will show certain costs charged to accidents. The question is asked, therefore, as to how to make immediate use of these figures since they represent accident costs and are readily available. The reason is that in general practice today, they do not show the complete and true accident costs. In current accounting practices, accident costs are not properly allocated. They are too frequently charged against some other account or department. Therefore, they give us a false picture of the facts.

What is the nature of accident costs? There are three principal kinds of accident costs. Each must be properly understood and correctly entered in the accounts. The three types are:

1. Direct costs. These are self evident costs for which actual expenditures are made. For example, the cost of a new head light to replace one damaged in an accident.

2. Indirect costs. These are costs incurred because of accidents but which cannot be tied up as resulting directly from a particular accident. For instance, the hours of labor spent on accident repair work represent an indirect cost of accidents.

3. Intangible costs. These are the imponderables in the total accident cost picture, the unaccountables which are too often ignored because it is so difficult to state them exactly. For example, the loss of a customer, which usually means at least a temporary loss of business, is an intangible cost.

How do you go about obtaining the true cost of an accident? As an automotive safety engineer, I would not be expected to become an expert accountant. Accounting, like safety engineering, is a specialized skill. Therefore, my job as an automotive safety engineer is to establish and maintain a cooperative working relationship with our respective accounting departments.

Here are logical steps you may take in developing the desired relationship with the accounting departments.

1. Acquaint the accounting department with the information.

2. Enlist the help and support of the Accounting Department by asking them to suggest ways of developing departmental cooperation. A trial period of using the new procedure may indicate an accounting value which will give them higher accuracy and the personal satisfaction of having accomplished it.

3. Enlist Accounting Department support in the related fields of accident analysis, insurance costs, and costs of driver turnover.

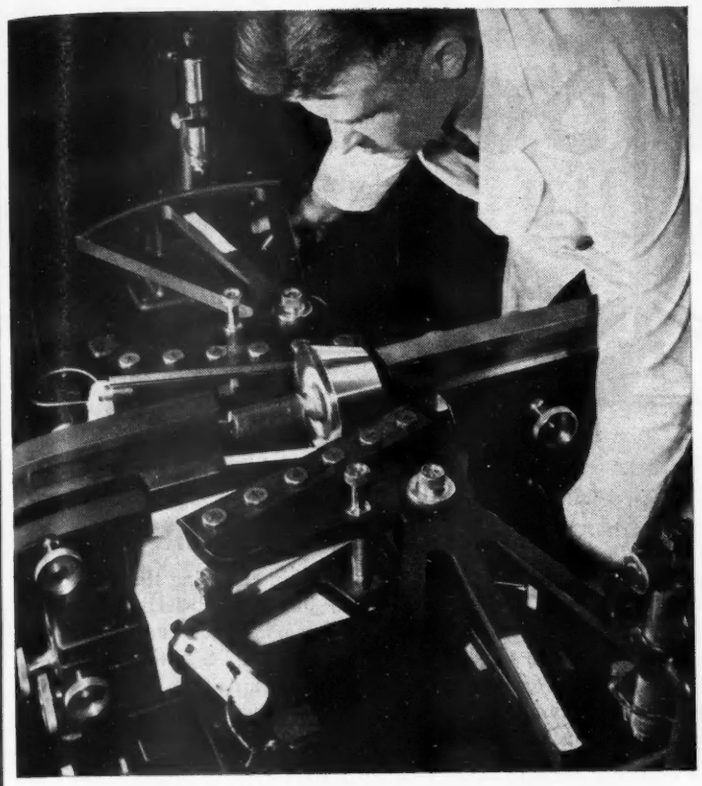
4. Adopt a plan to compare the accident cost obtained by the old and new methods.

In summary, of what use will our accident costs be after we get them? To summarize the points of use for accident costs:

1. We will determine for the first time the actual cost facts.

2. We will use these cost facts as the basis of predicting future losses, if accident prevention measures are not taken.

3. We will inform management of the cost facts, and on the basis of what they show, ask for authority to take definite steps to cut these costs.



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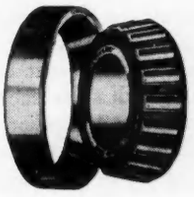

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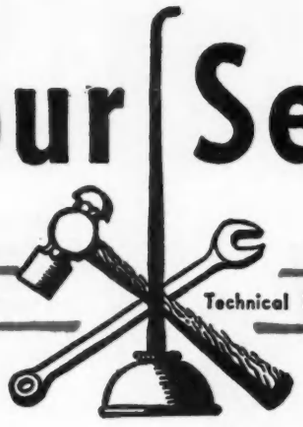


By M. K. SIMKINS

Technical Editor, Commercial Car Journal

Using Too Much Fuel?

There is always a tendency for the mechanic to blame a worn carburetor for poor fuel economy, and as a result replacements are installed when other conditions or other components are to blame. Dirt, preventing valves from seating properly or causing restrictions in the circuits, is probably the first cause of improper fuel mixtures. Careless fuel and air adjustments play a major role in fuel wastage.

It should be emphasized that the carburetor should never be removed on a "hunch." All possible tests should be conducted before any work is started. The vacuum gage, the combustion analyzer and a few simple tests will tell you what is wrong.

Here are common factors figuring into poor carburetion:

1. Excessive fuel pump pressure.
2. High fuel level (improper float setting).
3. Improperly adjusted choke valve.
4. Improperly seating accelerating pump check valve.
5. Restricted idle bleeds.
6. Improperly seating fuel inlet valve seat.
7. Leakage at the power valve seat.

All of these conditions can be corrected by cleaning or adjusting. So the time spent in close checking will pay off in by far the most cases.

Wider Valve Seats May Improve Performance

Every automotive man knows that the valve seat has a direct bearing on the heat dissipation characteristics of the valve. A wide seat usually permits cooler operating valves, while a narrow seat prevents the valve head from rapidly dissipating its heat to the block. Manufacturers' recommendations for seat and valve angle should be followed in most instances.

However, it has been noted that in *problem* engines some fleets have widened the valve seat in a move to cut warpage and burning—with some success. This is not a general recommendation, but where valves are failing anyway, the operator might experiment with a wider seat. There will be more tendency to collect carbon, but heat dissipation will be improved. Since carbon formation will have a tendency to cancel the modification, changes should be made with caution.

It is assumed, of course, that preceding such changes, all factors which could be responsible for valve overheating have been considered and all practical measures have been taken to correct the trouble.

When You Change the Oil Filter

We note that some mechanics, in changing the filter elements in the oil filter, do just that—inserting the new element into all the sludge and muck that accumulates in the bottom of the case. It is true that they save all of five minutes by not cleaning out the filter case—but think of the job the new filter must do. Obviously, a new element has its effective life shortened by up to 30 per cent when it must refilter the sediment the old one has failed to remove.

In the interest of saving time when changing filters, it is suggested that when a drain is not incorporated into the design of the unit, a ½-in. hole be drilled into the base of the case and threaded to take a pipe plug. Then the sludge can be drained and the unit cleaned before the new element is installed.

Check the Clutch Pressure Plate

The installation of a new clutch lining seldom cures a defective clutch, especially where the unit has failed prematurely. The pressure plate is subjected to tremendous heat from friction, and when it once starts slipping, heat checks soon develop. When grooves, cracks, burned spots or heat checks are found on the plate, it can be assumed that the life span of the metal has been shortened. Use of new springs with a new pressure plate is usually less expensive than attempting to restore a burned or warped plate.

So make a systematic check of spring pressure, lever settings and wear of individual parts before buttoning up the assembly. Locate the cause of the failure, replace all defective parts and save an extra rebuild job.

Don't File Off the Built-in "Crush"

Every once in a while we find evidences in fleet shops of bearing failures resulting from incorrect installation practices. Inspection shows that the bearing has been too tight, resulting in a wiping out of the alloy, scoring and in some cases melting out due to insufficient clearances.

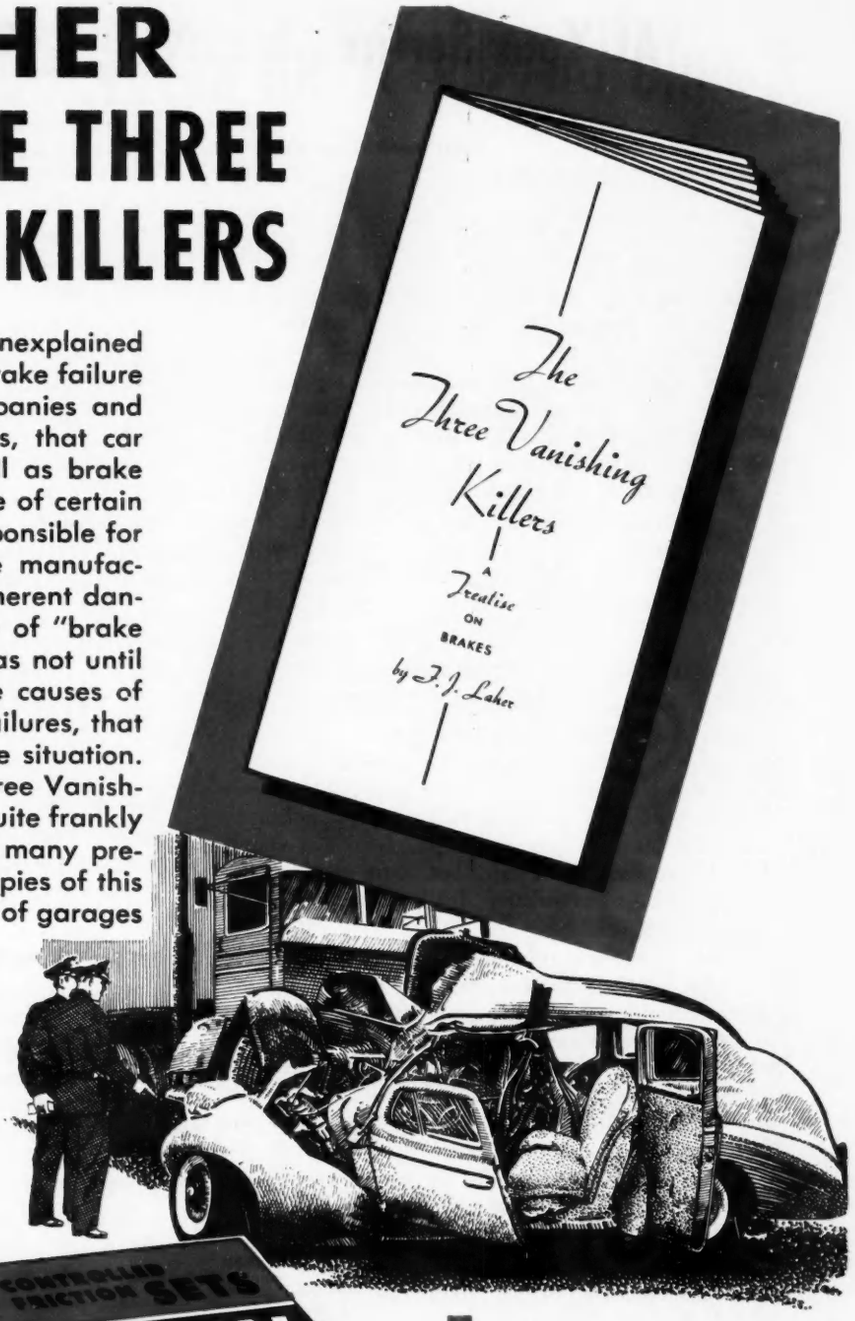
Here is what has happened in more than one case. The mechanic, finding that the combined vertical height of the two halves was a few thousandths of an inch greater than that of the bore formed by the cap and rod end, or the cap and the saddle in a main

(TURN TO PAGE 14, PLEASE)

F. J. LAHER EXPOSES THE THREE VANISHING KILLERS

IN PAST YEARS, so many unexplained accidents have been charged to brake failure in the records of insurance companies and police accident prevention details, that car and truck manufacturers, as well as brake makers, have been silently aware of certain "unknown factors" that were responsible for taking thousands of lives. Brake manufacturers were all sensitive to the inherent dangers involved, all of them spoke of "brake fade" in vague generalities. It was not until F. J. Laher isolated three definite causes of the hitherto unexplanied brake failures, that anything was done to remedy the situation.

In a new book entitled "The Three Vanishing Killers," F. J. Laher discusses quite frankly and fearlessly the real causes of many previously unexplained accidents. Copies of this book are available free to owners of garages and brake repair shops; to automobile, truck and brake manufacturers; to fleet owners; insurance underwriters, police traffic departments. In short, if brake safety is of importance to YOU—we will consider it a privilege to mail you a copy of this enlightening treatise on brakes.



TO recognize the cause of brake failure is one thing, but to knuckle down and do something about it—to remedy a bad situation, that is something else. LASCO SUPER-BLOX, available nationally, are the practical answer to "brake fade." Compounded and cured to contribute greater SAFETY, as well as good braking and long wear, SUPER BLOX will appeal to all interested in greater SAFETY.

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Continued from Page 10

bearing, filed off this surplus height. Result was a tight bearing because the "crush" built into the caps was destroyed.

In some cases this will permit the bearings to work in their seats, preventing proper heat transfer and resulting in a shearing of the locking tips. The bearings turn in their seats and seal off the oil holes and the oil supply to other bearings.

The day of filing bearing caps is over, and adjustment of shimless bearings should be considered impossible. If they don't fit properly, use undersize inserts or align bore semi-finished inserts to size.

Check up on Your Anti-freeze

Know your anti-freeze—before you put it into that radiator. Name brands, of course, can be relied upon, but many types can cause definite damage, according to the National Bureau of Standards. In a new booklet entitled "Automotive Antifreezes" the Bureau states that ethylene and propylene glycol and simple alcohols are considered safe, but those containing a salt base or a petroleum distillate are definitely harmful.

Strong corrosive action was noted in tests with the salt base solutions such as calcium, magnesium and sodium chlorides. Inhibitors used with these solutions do not always stop corrosion. The petroleum base anti-freezes were found harmful for three entirely different reasons: they are inflammable; they cause hose deterioration; their boiling points are far too high.

There are several methods by which anti-freezes can be identified. The easiest way is by igniting rags soaked in their solutions. The alcohols burn with a clean, blue flame; petroleum based solutions cause a smoky yellow flame; and salt base solutions do not burn at all.

A New Look at Anti-freeze

The standard-priced menthanol-based anti-freeze may be entirely satisfactory in 80 per cent of the vehicles on the road, according to a DuPont expert. In fact, he says they may do the job better than the premium-priced anti-freeze. Premium-priced types are recommended when the cooling system has been adjusted to give operating temperatures above 160 deg, to get more heat from the heater, where 30-deg below zero protection is necessary, in heavy-duty driving, and in high altitudes (unless the lower boiling point of menthanol solutions is compensated for by a radiator pressure cap or lower opening thermostat.)

Menthanol-based anti-freeze will not evaporate from the cooling system under average conditions. Most losses are caused by leakage, after-boil, or thermal expansion, and these losses may be minimized by keeping hose connections and other cooling system parts tight, by use of a surge tank or a pressure cap.

This Corrosion Trouble

With the coming of cold weather fleetmen have cleaned out cooling systems and added various types of anti-freeze. In especially the older vehicles, they have been amazed at the rust and scale accumulations that have formed during the summer months. Here is why that has happened.

All natural water contains impurities in the form of salts, acids and alkalies. With the evaporation taking place in the cooling system, vapors escape but these impurities remain. The salts act as a binder for the rust and scale that forms while the acids corrode any metal they contact. As the corrosion takes place with increased temperature conditions, more impurities are formed in a never-ending cycle.

Another action present in the cooling system is an electrolytic action which results when dissimilar metals immersed in a salt solution produce a current through the block. Iron and aluminum are eaten away by this action. Pin point leaks in the radiator often result.

This is why rust inhibitors should be used during the summer in the water and why all anti-freeze solutions contain some chemical that will neutralize harmful salts. That is why frequent reverse flushing of the system or the use of cooling system filters is often recommended. Use of rain or distilled water will reduce the tendency to corrode, but all of these factors must be accompanied by adequate temperature control of the coolant. Sealed or pressurized systems which keep aeration at a minimum also aid in extending the life of radiators and water jackets.

The Cam Angle is Important

Many manufacturers (not all) provide cam angle specifications for adjusting contact points as a more accurate guide to securing proper setting. Set with a cam dwell meter, the points should give long service and efficient operation. Set with a "guess gage" they can offer no end of trouble.

Cam angle refers to the number of degrees through which the distributor cam rotates while the contact points are closed. In a 6 cyl engine, for example, the points open and close through six cycles during one revolution of the cam. It thus determines the length of time the current primary flows through the primary winding of the coil to saturate it.

Since the condenser operates in synchronism with the coil to produce a good firing spark and also to reduce the arcing tendency at the points upon break of contact, improper cam angle can upset the cycle and permit misfiring. The result is eventual burning of the points. Here's why:

If the points are set with a wide gap (too small cam angle) they open too slowly, permitting arcing and burning. They do not stay closed long enough to allow the coil sufficient time for full saturation, causing miss at high speeds. If the gap is too small (too large cam angle) the points open and close with a snap that produces bounce and erratic coil action. The coil and condenser will not discharge properly. This causes both low and high speed miss.

Of course, the feeler gage can be used to adjust points, and where there is no build up or pitting, may do a satisfactory job. However, where cam angle settings are given, it is suggested that a dwell meter be employed.

Have Your Trailers Got the "Washboard" Blues?

NEW TRAILMOBILE Model "A" Quarter Panels Can Take Severe Blows from Overhanging Trees Without Costly Damage!

Trees overhanging the highways in small towns are a hazard that drivers often can't avoid. But the constant banging of trees need *not* cause ugly, expensive-to-repair quarter panel "washboarding"—not if you are pulling a new TRAILMOBILE Model "A"!

TRAILMOBILE'S new, one-piece extruded aluminum quarter panels can take tremendous blows without denting or distorting. Seamless, with integral drip moldings, they stay water and weather resistant! You keep your service and maintenance costs down . . . you bring profitable hauling capacity up—when you switch to TRAILMOBILES as more and more profit-wise operators are doing!

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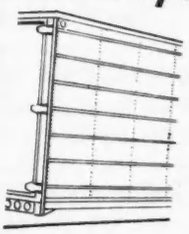
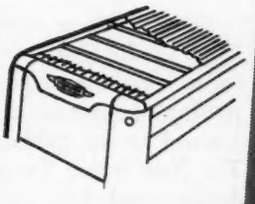


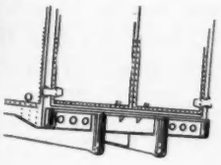
Matched side panels keep maintenance low

Strong, corrosion-resistant Alclad side panels are made in identical 4′ sections for quick, low cost replacement.

New, stronger roof cannot hold water or dirt

New steel roof bows have 60% greater resistance to deflection. Full 1″ crown to roof gives positive water draining action.





New "self-protecting" rear end

Reinforced steel bumpers at the center and ends give added protection against docking damage. Recessing lighting and reflector system cuts maintenance costs.

The Trend is to TRAILMOBILE

TRAILMOBILE INC.

Cincinnati 9, Ohio • Berkeley 2, California

Friendly Service from Coast to Coast

The OVERLOAD

EDITORIAL COMMENT

Why Not A Sensible "Cease-Fire" For Highway Arguments?

AS ANOTHER YEAR draws to a close, we're making a wager that 1951 will go down in trucking history as the year the industry woke up to the highway situation; and that 1952 will be the year the industry did something about it.

In a year that was filled with startling events, there were two of special importance. The first was the New York "ton-mile" tax. There had been similar taxes in other states but none so onerous, and New York with more vehicles than any other state, is the bellwether for others to watch and follow. Overnight, hordes of truck operators, particularly of the let-George-do-it variety, were galvanized into action. At last the cry was united—"We're paying a whopping extra price for highways but what are we getting in return?"

The second event was "Project Adequate Roads." Already known as PAR, it is the handiwork of the National Highway Users Conference, and behind it the American Trucking Assns. Fully described on Page 65 of this issue, PAR is the working tool, by which *all* highway user interests can unite in action to get the nation out of its highway muddle. If highway officials and the legislators behind them can be sold on PAR—and it will take a heap of selling—the highway builders can put first things first and get politics, once and for all, out of the highway picture.

Between these events much had happened to bring the highway picture into sharper and sharper focus. The big manufacturers of the industry were putting thousands of dollars into advertisements beamed at the public, and aimed at better roads. The New Jersey Turnpike came into being with a designed axle load capacity of 36,000 lb., proving it could be done, economically. Highway builders and truckers alike were agreed that the Maryland Road Test had proved nothing, save only that there was something rotten about previous road building procedures.

But at year's end two important questions remained unanswered. You heard them wherever highway builders and highway users met.

Said the builders: "We can now design our roads for *any* capacity. What axle load do you want and how much are you willing to pay?"

Said the truckers: "What will the extra capacity cost—not in guess-work figures or wild statements based on improperly designed roads of the past, but in proven facts based on modern construction techniques?

Obviously neither side had a ready answer. Truck interests cannot answer the builders' questions until they get the answer to their own. Old tests didn't work and new ones are months if not years away. So the deadlock continues. For the immediate building needs ahead, it seems that there must be a temporary truce, a cease-fire under which the building program can get underway on a sound basis with provisions for the future. Such a truce would be complex but could contain ideas like these. Let the truckers say to the builders:

"We're doing reasonably well with 18,000 lb. in the west and about 22,000 lb. in the east. So far you have not demonstrated that you can build roads that will take even that. So why not build your new sections to these minimum standards (plus a margin for both structural failures and industry advancements). When you prove these loads can be met, tell us in real figures (not conjectures) how much more they cost than comparable passenger car roads of equal traffic capacity. When we get these data we will give you a scientific answer to the question of future loads, and we will pay our fair share of the cost."

It's something to think about as we all share the coming holiday season and as we all pull together to make 1952 a prosperous and logical transportation year.

Bart Rawson
Editor

CCJ REPORTS

on News of the Industry

Private Carriers Announce Convention Plans

An open forum meeting of the National Council of Private Motor Truck Owners, Inc., will be held at the Hotel Statler in Washington February 7th and 8th. This will be the 13th annual convention of the group.

Preliminary announcements indicate that a program keyed to defense mobilization problems will be presented. Senator Edwin C. Johnson of Colorado, chairman of the Senate Interstate and Foreign Commerce Committee will open the session with a luncheon address on the 7th. It is expected he will forecast some of the possible legislative proposals which may affect transportation.

At the other end of the program, the closing luncheon will be addressed by Arch N. Booth, executive vice president of the U. S. Chamber of Commerce. Other speakers during the sessions will point up industry-wide problems such as safety on the highways, and the possibility of increased regulation.

Trucks Up—Rails Down In Freight Ton-Mileage

A report issued recently by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission brought to light that for the first time in history, the total intercity freight handled by railroads has fallen below 60 per cent. This was reported for the 1950 calendar year. The report further indicated that in the same period, the total tonnage of intercity freight moved by truck showed another gain.

Statistically: in 1950 the railroads accounted for 596.9 billion ton-miles of traffic or 58.7 per cent of the total for the nation. That compares with 60.6 per cent of the total for 1949.

The bureau found that "highway truck traffic, which showed sharp relative declines during the war years, accounted for only 4.5 per cent of the total intercity ton-miles in 1944." Other figures showed the truck percentage has risen uninterruptedly to a peak of 12.4 per cent in 1950. The truck share of traffic in 1949 was 10.6 per cent.

The report also showed that the for-hire and private carrier groups accounted last year for 126 billion ton-miles of freight hauling—a gain of 34.5 per cent over the previous year.

Explosives Contract Opposed

The state of New Jersey has officially voiced opposition to a request being made by Riss and Co., Inc., of Kansas City, Mo., and other truck lines to haul live ammunition and explosives over the state's highways. The Interstate Commerce Commission is due to hand down a ruling on this request very shortly.

New Jersey officials, headed by Attorney General Theodore D. Parsons, claim that "Transportation of high explosives over these highways, with the high accident rate existing not only in New Jersey but throughout the country today, is a great potential hazard. The present transportation of these items has not resulted in excessive jeopardy of life and property and there is no apparent reason why such jeopardy should be courted by approving the transportation of these items over the highway."

Michigan Professor Defends Trucks

In an article published in the November issue of *American Mercury* Dr. John S. Worley, professor emeritus of transport engineering at the University of Michigan stated emphatically that the trucking industry is "Abused out of hand, badgered by punitive legislation and taxes, and above all, blamed for all the ills to which motor highways are heir."

Dr. Worley is considered one of the country's leading authorities on highways. In the article, he presented the trucking side of the highway story, highlighting the lack of consideration or proper evaluation

(TURN TO PAGE 158, PLEASE)

DATES and DOINGS

1952

JAN. 15-18—31st Annual Meeting Highway Research Board, National Academy of Sciences, Washington, D. C.

JAN. 23-25—American Transit Assn., Region 4 Meeting, Atlanta Biltmore Hotel, Atlanta, Ga.

JAN. 24-26—Motor Truck Assn. of So. California and Truck Owners Assn. of California Joint Convention, Coronado Hotel, Coronado, Calif.

JAN. 27-30—11th Annual Convention, Truck-Trailer Manufacturers' Assn., Hotel Shamrock, Houston, Texas.

JAN. 27-30—National Automobile Dealers Assn. Annual Convention, 34th Street & Park Ave. Armory, New York, N. Y. (Equipment exposition, Grand Central Palace, Jan. 26-29).

JAN. 28-30—American Transit Assn., Region 6 Meeting, Buccaneer Hotel, Galveston, Texas.

FEB. 4-7—Silver Jubilee Anniversary Exposition of Automotive Accessories Manufacturers of America, Grand Central Palace, New York, N. Y.

FEB. 7-8—National Council of Private Motor Truck Owners Inc., Annual Meeting, Hotel Statler, Washington, D. C.

FEB. 26-28—National Transport Vehicle Show and Fleet Maintenance Exposition, W. 62nd St. & Columbus Ave. Armory, New York, N. Y.

FEB. 28-29—American Transit Assn., Region 1 Meeting, Hotel Statler, Boston, Mass.

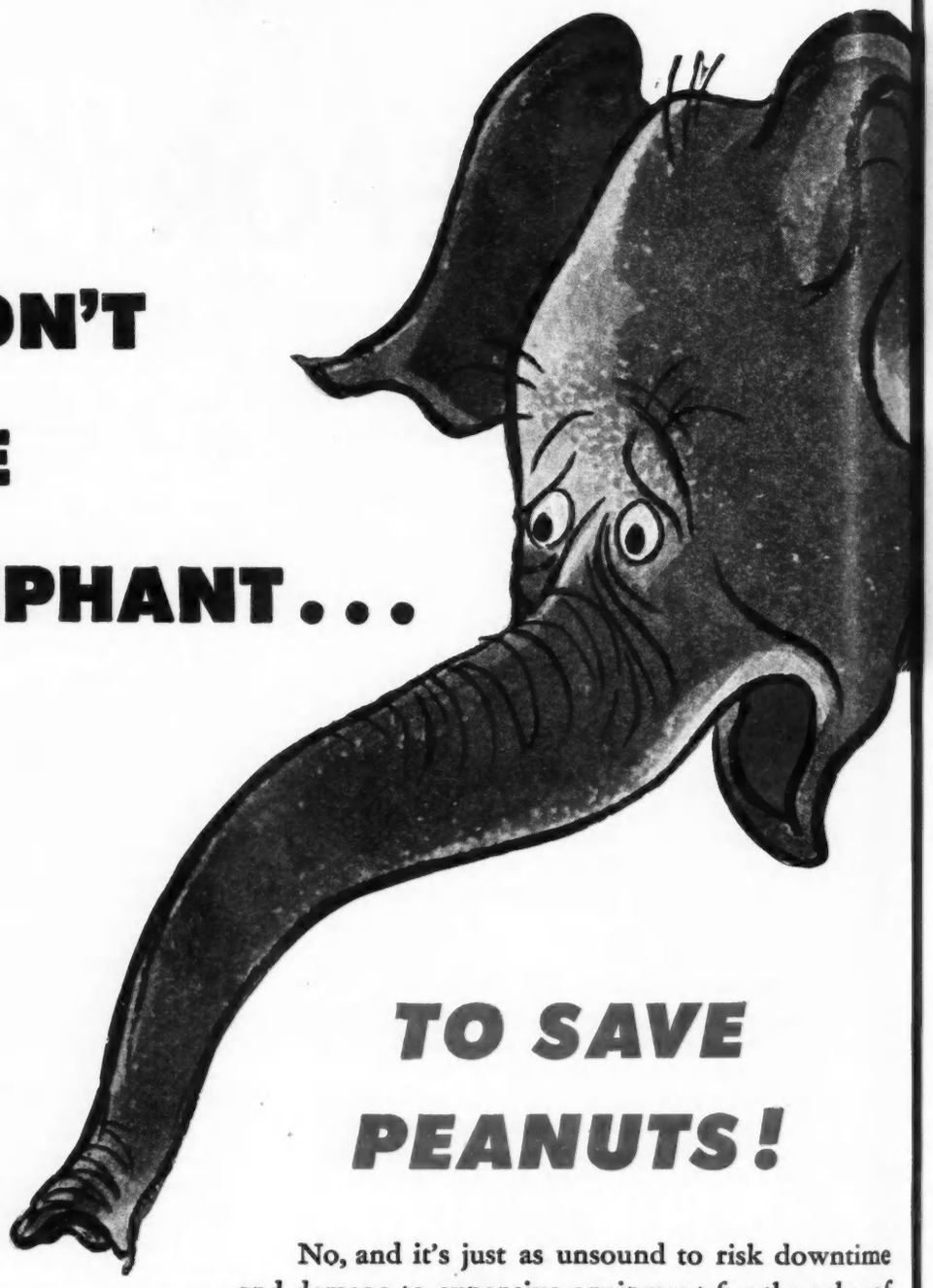
FEB. 28-MAR. 2—Pacific Automotive Show, Pan Pacific Auditorium, Los Angeles, California.

MAR. 18-21—American Transit Assn., Region 3 Meeting, Carter Hotel, Cleveland, Ohio.

MAR. 20-23—10th Annual Southwest Automotive Show, Sam Houston Coliseum, Houston, Texas.

MAR. 24-28—American Transit Assn., Region 5 Meeting, Chase Hotel, St. Louis, Mo.

YOU WOULDN'T STARVE AN ELEPHANT...



TO SAVE PEANUTS!

No, and it's just as unsound to risk downtime and damage to expensive equipment for the sake of saving "peanuts" on lubricant costs! For lubrication is not just "oils and greases"... it's also knowledge of your machines, the right lubricants to use, and where and when to use them.

That's why you save in so many ways with *Socony-Vacuum Correct Lubrication*... a custom-made program of lubrication for your particular equipment and operating conditions that pays off in greater efficiency and availability, lower maintenance costs, and—ultimately—lower lubrication costs.

For the *genuine* savings of Correct Lubrication, call your Socony-Vacuum Representative.

CCJ REPORTS

DETROIT DISPATCH

by LEN WESTRATE Detroit News Editor

Record Truck Production

There is little doubt now that truck builders will turn out the largest number of trucks in history this year. Careful analysis of production, registration, and export figures, however, reveal some interesting facts about the availability of trucks for domestic users. The best estimates available indicate that truck production this year will be very close to the 1.4 million mark, topping the best previous year, 1940, by something like 25,000 units and exceeding last year's total by something more than 60,000 trucks. One complicating factor in evaluating 1951 production is the number of military trucks and civilian type trucks purchased for military use. These figures are classified for security reasons. Also important is the great increase in the number of trucks exported this year compared to a year ago. Exports are running about 60 per cent ahead of a year ago and should exceed the 1950 total by about 75,000, or more than the gain in production this year over last year. As a result of the number of trucks going to the military and the increase in exports, the total number of trucks available for domestic and civilian users undoubtedly is considerably smaller than a year ago although an exact estimate of how much less is not possible.

Ford Overhead Valve Engine

At least one new V-8 overhead valve truck engine will be introduced next year. Ford has such a powerplant coming for the Lincoln car and also plans to use a modified version of the engine in the larger Ford truck models. An overhead valve six also will be adopted for Ford truck use next year.

You can also paste it in your hat that Dodge eventually will have such an engine in its truck line. Company officials shy away from any definite commitments on use of either the Chrysler 180 hp V-8, or the Dodge V-8 engine which is under development. However, because of the freeze on machine tools, it is not likely that the Dodge engine will get into production next year as had been planned.

Stainless Short for Trailers

The shortage of stainless steel has hit the trailer industry. Fruehauf's production of stainless steel jobs has been drastically reduced because of the shortage. However, the company will build more aluminum trailers so that total production will not be seriously affected.

Watch for Inferior Parts

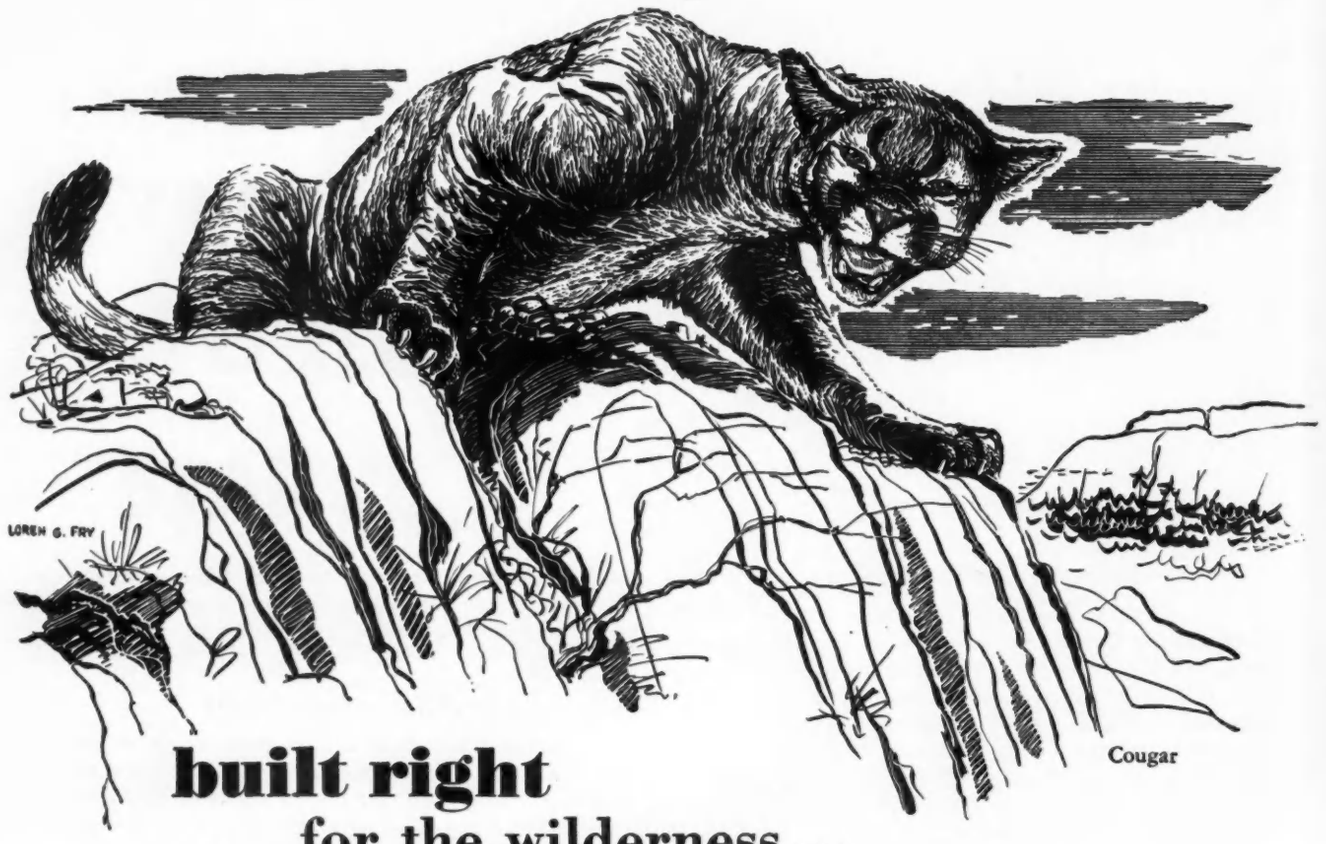
The service manager of a large truck producer reports that some of its customers recently ran into considerable trouble when they brought replacement axles from a fly-by-night company after their regular source of supply was unable to fill their needs because of a shortage of alloy steel. The axles were found to be of inferior quality with the result that failures ran high. Because of that experience, however, NPA allotted additional alloy steel to the established supplier. The service representative says that truck operators should beware of opportunists who take advantage of the materials shortage to palm off inferior replacement parts, but should be patient because there is little likelihood that the government will allow any truck parts shortage to exist very long.

Overload Law Ruled Out

The Michigan Attorney General has ruled out as probably unconstitutional a legislative act which sets a sliding scale of damages against owners of trucks carrying excessive loads. County prosecutors have been instructed to ignore the sliding scale penalties of the act and to assess only the $100 fine specified in the act against operators found guilty of overloading. He said that the act mingles the matter of civil damages with that of criminal law and that also it lets Justices of the Peace fix damages although they have no authority to do so.

Twin Coach to Use Leyland Engines

Twin Coach has acquired exclusive rights to manufacture and sell in the United States the complete line of diesel engines produced by Leyland Motors, Ltd., of England. The engines will be modified to comply with American standards with respect to threads, accessories, and fittings. Engineering will be handled by Fageol Products Co., subsidiary of Twin Coach. The engines will be used in Twin Coach buses and Fageol cargo trucks for the Canadian and export markets, and will be offered also for industrial use.



Cougar

built right for the wilderness...

built right for every truck-operating condition...

From northern Canada to the Argentine, the Cougar is right at home. Powerful and tenacious, he's adapted to all kinds of climate and terrain. Adaptability is a characteristic of Blood Brothers Drive Assemblies, too. They're tough, long-lived and smooth-running. On grueling highway runs or heavy pulling on off-the-road jobs, they get the power through dependably. Whatever your problem in heavy duty power transmission through universal joints, call on Blood Brothers for engineering consultation.

BLOOD BROTHERS machine co. ALLEGAN, MICHIGAN

Division of Standard Steel Spring Company

Chicago Office: Great Lakes Spring Division, 7035 West 65th Street

CCJ REPORTS

WASHINGTON RUNAROUND

by KARL RANNELLS Washington Correspondent

Vehicle Design Frozen

There will be no major changes in truck and other automotive vehicle designs and models—unless for a special defense or supporting purpose. National Production Authority has blocked such change by its restricting machine tool order. The order permits, however, making and shipping to the automotive industry such tools as may be needed to replace worn-out equipment.

Meanwhile, first quarter materials allotments have been made on a basis of allowing production of 250,000 trucks and tractors for civilian purposes. Some 10,000 of these are to be set aside for export. However, NPA said an extra 10,000 could be made if manufacturers can make materials stretch or decide to dig a little deeper into their own materials inventories.

Minor changes have been made in the percentages to be produced by the individual companies—also in the ratio of size-weight classifications. Mediums and heavies are increased slightly at the expense of lighter truck production. The unit figures are: 132,500 limits, 82,500 mediums, and 35,000 heavies.

An additional production above the 250,000 will be allowed as follows: military orders, 8000; Marshall Plan, including military aid, 6000; General Services Administration (general government use), 5600; and neighboring Canada, 1400.

Hope for Higher Trailer Output

Despite the tight materials supply, NPA is allocating materials to truck trailer manufacturers on a basis of 16,000 units for first quarter production. Of the total, 14,500 would be for domestic use and limited export.

Meanwhile, the Census Bureau reports (final) that trailer production for 1950 amounted to 64,617 units. Census also reports that 1951 production through August amounted to 47,843 units, an increase over the same period last year. Indications now are that the current year's production will be slightly above 1950.

First quarter materials allocations were on a basis of about 100 per cent of 1950 production. There was hope in some quarters that the expected increase in steel and aluminum production during last half 1952 might permit quarterly quotas to be upped slightly. But the parts situation is also a big factor.

Parts Shortage Seen

Earlier optimism has dimmed during the past month with respect to the hope that supplies of replacement and repair parts generally would be in adequate supply for some months ahead. Growing copper and lead scarcities are the reason.

Control officials say they are attempting to keep materials flowing to parts makers at a rate somewhere near the 1950 level. But spot shortages are showing up for axle shafts, ring gear and pinion assemblies. Also, in November, reports were reaching NPA of shortages in spark plugs and voltage regulators. Early reports indicated that 1951 battery output would fall short of the 22,000,000 units estimated as the minimum needed for replacements. In view of the increasing quantities of American trucks being sent overseas to friendly nations, there will be a rising need for parts for export. Within another year it may be necessary to allocate as much as 12 per cent of output for this purpose.

Gasoline Supplies Adequate

Gasoline rationing still appears unlikely in the foreseeable future in spite of (a) rapidly increasing military requirements, (b) a 25 per cent increase in overall consumption since 1949, and (c) a falling behind in construction of new producing, refining, and distribution facilities because of materials shortages.

Myers Report Socks Trucks

A sock to the chin is handed the trucking industry in the recently released Myers report (Senate Report 1039) dealing with an inquiry by the Senate Interstate and Foreign Commerce Committee into transportation problems. Briefly, the report concludes that railroads are the victims of federal regulation which places them at the mercy of "subsidized" freight carriers, namely motor carriers. It pleads for more rigid and restrictive regulation of highway carriers. (See further discussion, page 126.)

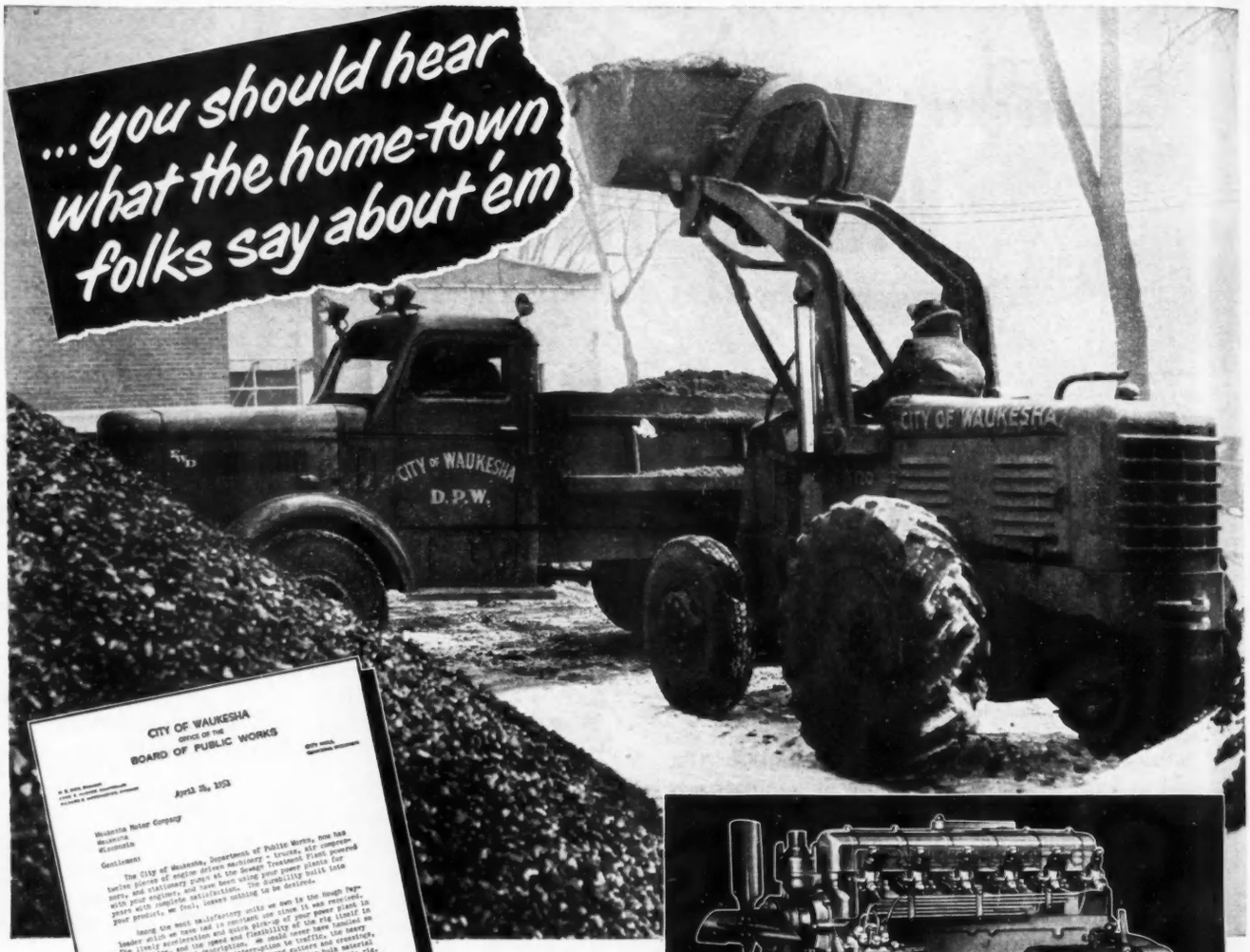
Package Size and Weight Cut

Considerable business, previously handled by the Post Office Department, will be forced into commercial shipping channels, including truck lines, as of Jan. 1. A new postal law reduces the size and weight allowances of parcel post packages mailed through first class offices. The size is cut from 90 in. in combined length and girth to 72. Weight must not exceed 40 lb for Zones 1 and 2 or 20 lb for Zones 3 to 8.

Railroads Ask Rate Increase

Confirming an earlier story by COMMERCIAL CAR JOURNAL, the railroads have gone to the ICC with a request for further hearings and a subsequent additional rate increase. In spite of previous rate boosts, rail net income for the first nine months of 1951 is declared to be sagging $94,000,000 below the same period last year.

...you should hear what the home-town folks say about 'em



CITY OF WAUKESHA
OFFICE OF THE
BOARD OF PUBLIC WORKS

April 28, 1951

Waukesha Motor Company
Waukesha,
Wisconsin

Gentlemen:

The City of Waukesha, Department of Public Works, now has twelve pieces of engine driven machinery - trucks, air compressors, and stationary pumps at the Sewage Treatment Plant powered with your engines, and have been using your power plants for years with complete satisfaction. The durability built into your products, we feel, leaves nothing to be desired.

Among the most satisfactory units we own is the Hough Payloader which we have had in constant use. The lively acceleration and quick pickup of your power plant in this machine, and the speed and flexibility of itself in maneuver, is beyond description. We could never have handled so quickly, and with so little interruption to traffic, the heavy snows, sleet and ice that clogged gutters and crossings without this valuable and dependable loader. Any bulk material loading job is easily and quickly handled by this versatile rig. We also find that the machine is very useful in grading for street and sidewalks.

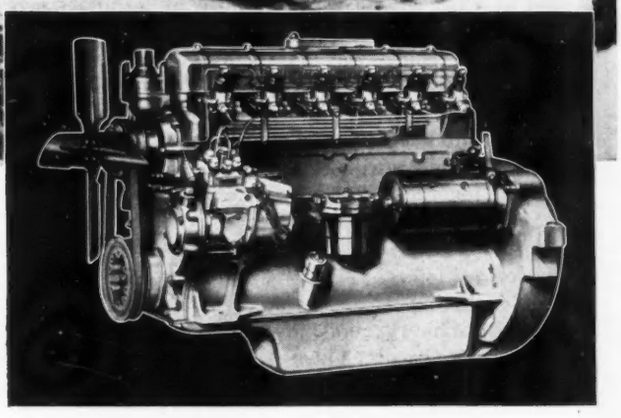
Again let me say that this Hough Payloader with Waukesha power can't be beat.

Very truly yours,

CITY OF WAUKESHA

W. E. Dick, City Engineer

WED:EB



Payloader in use by City of Waukesha has **DLCA Waukesha Diesel Engine,** six cylinders, 3¾ x 4-in., 265 cu. in., 85 max. hp at 2600 rpm. (Truck has a Waukesha Engine, too.)

The home-town folks are not easily impressed. They know you and your product, too. Save your sales talk—they pay off on performance.

This comes to you direct—from the home of Waukesha Engines. And it's Mr. W. E. Dick, City Engineer, talking—"The City of Waukesha, Department of Public Works, now has twelve pieces of engine-driven machinery . . . powered with your engines. Among the most satisfactory units we own is the Hough *Payloader* which we have had in constant use . . . the lively acceleration and quick pickup of your power plant in this machine, and the speed and flexibility of itself in maneuver, is beyond description. We could never have handled so quickly, and with so little interruption to traffic, the heavy snows, sleet and ice that clogged gutters and crossings without this valuable and dependable loader. Any bulk material loading job is easily and quickly handled by this versatile rig . . . also very useful in grading. This Hough *Payloader* with Waukesha power can't be beat."

Payloaders—tractor-shovels that dig, load and carry-all types of material—are made by The Frank G. Hough Co., Libertyville, Ill., who power them with Waukesha Engines. Mr. Dick can tell you why. He has "been using your (Waukesha) power plants for years with complete satisfaction. The durability built into your product leaves nothing to be desired." Send for Bulletin 1411.

WAUKESHA
Diesel POWER

133

WAUKESHA MOTOR COMPANY, WAUKESHA, WIS. • NEW YORK, TULSA, LOS ANGELES

Shop Foreman's Wife: "When I married you I didn't know you were a coward. I thought you were a very brave man."

Shop Foreman: "So did everybody else."

CCJ

CATTY CORA, OUR OFFICE CUTUP, SAYS THAT THE WAY FOR A GIRL TO LEARN ALL THE ANSWERS IS TO START RUNNING AROUND WITH QUESTIONABLE FELLOWS.

CCJ

Slick Chick (after seeing movie): "Ah, wasn't Valentino a great lover?"

Traveling Freight Agent: "Oh, I don't know. Where I came from I was known as the great lover of the Tennessee Valley. I won a loving cup for being the champion smoocher."

Slick Chick: "Well, your fame has spread. When those two girls passed us they looked at you and one of them said, 'Good Heavens! What a kisser!' ".

CCJ

Heavy Date: "Who do you think you are, big boy, Santa Claus?"

Auto Parts Clerk: "No, why?"

Heavy Date: "Then leave my stockings alone."

CCJ

Woman: "Son, can you direct me to the bank?"

Truck Dispatcher's Son: "Yessum, for a quarter."

Woman: "Isn't that mighty high?"

Truck Dispatcher's Son: "No ma'm, not for a bank director."

CCJ

Secretary to Vice President Safety: "Oh, Mabel, dear, what a cute boudoir you have. And just look at that magnificent full-length nude painting on the wall. Why, Mabel, that is a painting of you! Goodness me, you didn't pose like that did you?"

Secretary to Vice President Maintenance: "Why, yes, Helen, it is me, but of course I didn't pose for it. The artist painted it from memory."

CCJ

A subway was being dug. A diesel mechanic in the advanced stages of inebriation stopped beside the excavation and called down to the man at the bottom of the pit: "Shay, watcha' doin' down there?"

"Building a subway."

"How longsh it gonna take to build it?"

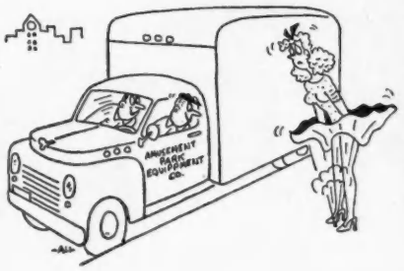
"Three years."

"To heck with it. I'll just take a taxshi."

CCJ

Fatty Floorboarder, our Peddle Run Driver, says he calls his boss "Swell Old Boy," but he abbreviates it.

"Cici Jay"



Blonde, vivacious, always involved by happenstance or forethought with a bus or truck "Cici Jay" makes her debut with this issue of COMMERCIAL CAR JOURNAL. Her creator, cartoonist Albert W. Isler, will keep us posted on her adventures from time to time.

CCJ

The handsome shop foreman and the beauteous maintenance office stenog were considering marriage, but were slightly reluctant because of the sharp rise in the cost of living. They each got out their pencils, set up a budget to include their combined salaries and figured up to see if they could afford to take the plunge. The shop foreman put down this figure and looked at that figure. He figured and figured and decided that they had better wait. Then, after carefully studying the maintenance stenog's figure, he threw away his pencil and hurried off to hunt the preacher.

CCJ

THE CORONER IS WHAT TOO MANY TRUCK DRIVERS APPROACH AT SIXTY MILES PER HOUR.

CCJ

Greasemonkey: "Doctor, I'm worried. Last night I dreamed I was alone with a thousand beautiful blondes, and a thousand beautiful brunettes, and a thousand beautiful red-heads. It was horrible, Doc."

Medico: "Well, what's so horrible about a lovely dream like that?"

Greasemonkey: "I dreamed I was a girl, too!"

First Truck Driver's Wife: "You were up terribly late last night, Mrs. Jenkins. Was anything wrong?"

Second Ditto's Wife: "Oh, no! I was just taking some spots out of my husband's clothes."

First Truck Driver's Wife: "They must have been mighty big spots to have kept you up 'till that hour."

Second Truck Driver's Wife: "No, not bad! Just one ten spot and two fives!"

CCJ

FIRST FLEET OPERATOR: "WHAT'S YOUR SON TAKING AT COLLEGE?"

SECOND FLEET OPERATOR: "ALL I'VE GOT!"

CCJ

President of Fleety-Fleet Express: "I suppose you know when quitting time is?"

Glamorous Secretary: "Oh, certainly. Whenever somebody knocks on the door."

CCJ

FAMOUS LAST WORDS: "GUESS WHAT, DEAR, I SOLD THE BABY BUGGY."

CCJ

Freight Handler: "How long have you been married?"

Fork Lift Operator: "The best part of a year."

Freight Handler: "When was your wedding?"

Fork Lift Operator: "A week ago."

CCJ

Horrible Harry, our new shop roustabout, tells us after returning from his vacation that the best place to pick peaches is at the beaches.

CCJ

LITTLE WIFEY: "Oh, William, when we were first married you used to tickle my chin. Do it again."

O. S. & D. CLERK: "Okay, which one?"

CCJ

The ignition specialist had a bad habit of reporting for work with liquor on his breath. Finally, the shop foreman decided to have a friendly talk with him.

"You would be in line for a much better job here someday, Bill, if you could just leave alcohol alone. Why, you might even be put in charge of our preventive maintenance program."

"You're right, Boss," came the slow reply, "but you see, when I've had a few nips I'm not only in charge of a department or program, I own the whole durn shootin' match."

Resume Work

CUTS TIRE COSTS

...up to 50%!

"New High-Mileage Records"

"12,000 more miles..." Records like this pour in from the country's "blue ribbon", high-speed, long-haul fleets. They show Raymasters are setting entirely new high-mileage records! Here's why:

- ***More Original Tread Mileage***... Extra-deep tread and deeper under-tread especially designed for highway hauling without limits as to speed or distance.
- ***Reduced Heat Failures***... Rib-type tread design and ventilating windows in shoulders permit cool running at high speeds.
- ***Multiple Recapping***... Stronger carcass – double reinforced shock pads and exclusive groove treatment strengthen, preserve tread and carcass.

Examine the proof yourself—at your U. S. Royal Dealer's. Have him prove to you how Raymaster can cut your tire costs!

U.S. ROYAL

RAYMASTER *—The Specialized Highway Truck Tire*

UNITED STATES RUBBER COMPANY

Key Man in Public Relations

A company's reputation is built day-by-day by men who deal with its customers and potential customers. Key executive, an ex-driver, outlines sound PR objectives

By J. M. Shanaphy
Manager, Safety Department
Railway Express Agency, New York, N. Y.

TODAY, business is judged not alone by the quality of the product or service it has to offer, but by its reputation as a citizen and a neighbor, as well.

Reputation — good or bad — is something that takes time to establish. All daily public contacts contribute to it. And modern business men take great pains and scientific steps to have their representatives — from salesmen to the final contact, the drivers—consciously build good will; thus building good reputation, something hard to destroy.

Good Begets Good . . .

ACTS of good will from salesmen are looked for and expected. But the reaction to a good driver attitude, from the standpoint of public relations is not always discernible to the naked eye—except in your income figures. I have in mind that, while a bad driver attitude will result in squawks as well as a loss of business, people are quite likely to take the good service for granted. However, this is not always the case.

. . . FROM A COMMUNITY—Perhaps the most unusual tribute ever paid to a Railway Express driver, a man who had previously been acclaimed and honored as "the best-liked citizen" of a Texas town of 12,000 people, was accorded to him when he died at the age of 45. In a spontaneous and sincere tribute to a man who was known personally to hundreds of the citizens, the leading merchants and civic organizations of the community met and planned and erected a monument to his memory.

A local newspaper, in recording his

(TURN TO NEXT PAGE, PLEASE)

THE DRIVER . . . Key Man in Public Relations

Continued from Page 51

It's not unusual for a company to give a retiring employee a gift. BUT when a customer gives him one, that's PR

A Texas town erected a monument to the memory of a deceased Express driver for his "unselfish service to others"

death, said of him, in part, that he "lived the abundant life. Possessed of indefatigable physical energies, he was a dynamo of assistance to mankind, and a living symbol of unselfish service to others."

. . . FROM A CUSTOMER—Another instance of good driver-public relations I like to think of is that of a New York City express driver who was retired on pension after many years of faithful service. One of the customers he had served long and well was the Bulova Watch Co. When we placed our driver on our pension roll, Bulova placed him on the pension roll of their company.

They took the position that, during all the years he had served them, while building Railway Express he was, at the same time, building the Bulova Watch Co. They felt he had earned a place on their pension roll, too.

Undoubtedly, many a fleet operator can recall instances where his drivers performed some service not clearly in the line of his duty, and which constituted good public relations. Recipients of such extra-services are quick to recognize them. Usually, they do nothing more than add the words "very much" to the customary "Thank you."

Repeated Acts Get Results

HOWEVER, there are times — usually after repeated courtesies —when they take the time and trouble to tell us about such incidents.

Here is a letter we received from the president of The Citizens & Peoples National Bank of Pensacola, Fla., commenting upon the smaller of such extra-service courtesies—yet to him it was important:

"May 11, 1951

"Mr. F. G. Almon, Manager
"Railway Express Agency
"c/o L&N Passenger Station
"Pensacola, Fla.

"Dear Mr. Almon:

"Nothing unusual happened this morning but suddenly what has become commonplace struck me as a service worth mentioning.

"Your driver came in the front way of the bank with a bulky package on his shoulder and instead of placing it where it was convenient for him, and in the spot where small items are held, he caught my eye, jerked his head towards the back and carried this heavy package to the rear of the bank and placed it on the janitor's shelf.

"Your Mr. C. W. Powell has always been most courteous and considerate to us. So often does he do the natural, kindly courteous things here that we tend to overlook that little extra service that he performs.

"His never-failing good humor, ready smile, even when our afternoon packages are not quite ready, has caused our people here to regard him as one of themselves.

"With a few more men like Powell the Railway Express could only have the most favorable public relations.

"Yours very truly,
(Signed) "G. W. Reese
"GWR:jm "President"

Next is a case where—according to the last paragraph of the letter—the customer was aware of a number of similar extra-service courtesies but never bothered to write until one touched his private life:

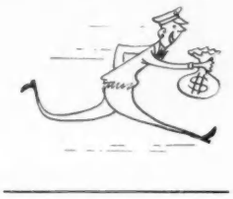
"1016 Patterson Bldg.
"Denver 2, Colorado
"January 27, 1951

"Mr. C. C. Case, Supt.
"Railway Express Agency, Inc.
"Union Terminal Bldg.
"Denver, Colorado

"Dear Mr. Case:

"On Tuesday, January 23rd, I received via your service a dog shipped from

It Takes More Than Ordinary Good Service to Get letters Like These



Triangle Litho Print Company
Tracing Reproduction Service
47 West Street
New York 6, N. Y.

March 13, 1951

Railway Express Agency
Executive Office
230 Park Avenue
New York, New York

Gentlemen:

May I take this opportunity of expressing my appreciation for the manner in which your Mr. Lavin, a trucker, identified by his number 3983, conducted himself in regards to an overpayment by me for a package delivered to the above organization on March 12, 1951.

Upon counting his receipts he noticed an overage and immediately returned with the extra money. The amount of the error was small, but it certainly increases our respect for an organization having such men as Mr. Lavin on your payroll.

Again my thanks and commendations for Mr. Lavin.

Sincerely,
James J. Boyle (Signed)

Ansul Chemical Company
1432 Hertel Ave.
Buffalo 16, N. Y.

July 13, 1951

Mr. Richard P. Vrenna,
Chief Commercial Agent,
Railway Express Agency, Inc.,
Curtiss Street Terminal,
Buffalo, N. Y.

Dear Mr. Vrenna:

When you called on me recently, I forgot to tell you about one of the things we are most pleased with. You have a driver on our route named Bambach (I believe this is the correct spelling) who is most definitely an asset to your company. He is pleasant, businesslike as well as friendly and has been of great assistance to us in answering questions pertaining to your company's service. It is certainly a pleasure to work with a man like your Mr. Bambach.
Several times during your visit I thought of the above and wanted to tell you personally about Mr. Bambach, but it just seemed to be slipping my mind.

Yours truly,
L. J. Wiechers (Signed),
District Manager,
Fire Extinguisher Division

W. W. Grainger, Inc.
127 W. 3rd St.
Cincinnati 2, Ohio

May 9, 1951

Railway Express Agency
Findlay & McLean Sts.
Cincinnati, Ohio.

Office of the Manager

Gentlemen:

It just occurred to me that some of us are not getting any younger and that I should express to you my personal appreciation of the assistance you have rendered to this branch during the years I have operated it.

Without exception, the many drivers who have picked up our shipments have gone out of the way to be helpful and to expedite merchandise to our customers, however, our friend, Joe (we cannot be sure of his last name) who has taken care of your interests in this section, has been and still is the star performer and if and when we get our new building out on the hill, the only thing we will regret leaving the Bottoms, will be Joe.

Yours very truly,
Wm. J. Greene (Signed),
Cincinnati Branch

A good index to the success of a Public Relations program is to be found in the mail. REA receives many like these

Massachusetts. The pup stood the trip well and at the time of his delivery at the house my small wife was home alone.
"In telling me of this experience, her comments on your Mr. Charles Zanol were very complimentary to him. She stated that he was very kind and patient as well as efficient in handling the the dog. He went to considerable trouble not required by the book of rules.
"For years Mr. Zanol has been making deliveries to me at our office and my impressions of him have always been favorable. It occurred to me that you might be interested in this little statement of our reactions to an employee who seems to do his work well and in addition, is something of an ambassador of good will for the large organization which employs him.

"Sincerely yours,
(Signed) "C. E. Eddleblute"

The following case, admittedly, is unusual. But another driver might have left the problem in the hands of the correspondent's grandmother after, perhaps, merely suggesting that a doctor be called and then go on with his deliveries:

"December 15, 1949

"Mr. J. W. Blossom
"Railway Express Bldg.
"Union Station
"Denver, Colorado

"Dear Mr. Blossom

"On last Friday, Dec. 9, my Mother had a very serious fall in our house.
"At the very same time of her fall, a Mr. J. J. Downing, who is employed by your firm came to our door. Being let in by my Grandmother, he at once saw the seriousness of my Mother's condition and helped her to the bathroom where she bathed the injury. Then he called for the Emergency ambulance.
"Mr. Downing certainly went beyond his call of duty. He remained with my Mother until she was safely placed in the ambulance and taken to the hospital.
"If it had not been for this quick action on the part of Mr. Downing, Mother's condition would certainly have been more serious than it has been.
"I want to express my deep gratitude to Mr. Downing and congratulate you on having such personnel among your organization.

"Sincerely,
(Signed) "Leonard J. Harris
"625 Cook Street
"Denver 6, Colorado"

The foregoing are examples of the cumulative effect of extra-service courtesies. The same is true—in reverse, of course—if the acts are discourteous. It takes the public a while to get "hoppin' mad." If customer letters or 'phone calls are negative, you can be sure that their gripes have been going on for some time.

Even chronic gripers will react favorably to continuous good treatment. They'll take out their mother-in-law (or other) troubles on somebody else if your drivers don't give them a chance to blow their safety valves on them.

Public Relations Objective

BUT single acts of courtesy or service beyond normal duty are not sufficient. They take too long to achieve the successful impact needed in these days of fast-moving activities and increasingly tough competition.

Take such cases as illustrated by the foregoing letters: Too often they are buried in the files—while newspapers or other propaganda agencies blare out our faults; those things which happen despite all we can do to prevent them.

Each company, no matter how small, should establish a well-defined public relations program. It should publicly and continuously broadcast information—in print, it lives longer that way—about its services and re-

(TURN TO PAGE 114, PLEASE)

What You Should Know About . . .

VISCOSITY

VISCOSITY INDEX

AND POUR POINT

IN THE EARLY days of the automotive and truck era, engines were not as critical to oil viscosity and viscosity index as are today's engines. Clearances were large; power output, speeds, temperatures and internal pressure were relatively low. Low temperature characteristics in an oil were not important in those days because in extreme weather, roads might be impassable even if the operator did get the engine to run. In those days, the only oil property property considered was "body"; the owner had his choice of "medium" or "heavy" oil.

As every fleet operator knows, today's engines are more critical toward the lubricant which they use. Probably the most important and most frequently stated property of an oil is its viscosity. It is the oil's "size" specification. You may wear a size 44 suit, but regardless of the pattern, tailoring, or fabric quality, any other size suit but 44 is wholly unsuitable to you. Similarly an engine way "wear" an SAE-20 size oil. In this case, an SAE-50 oil, though of top quality, would not fit that engine. Starting might be impossible or the oil might fail to flow at a proper rate through the bearings and premature failures could occur. Lubrication of any mechanism depends upon an oil film of proper viscosity to support the load and prevent metal-to-metal contact of the moving surfaces.

Revised SAE Classification of Motor Oils

A. An SAE 5W viscosity classification has been accepted, officially.

B. The 10W and 20W grades, formerly listed separately as "The Automotive Manufacturers' Viscosity Classifications," have been incorporated in the new Official SAE Classification.

C. The SAE 10, 60 and 70 grades will be dropped from the SAE Classification.

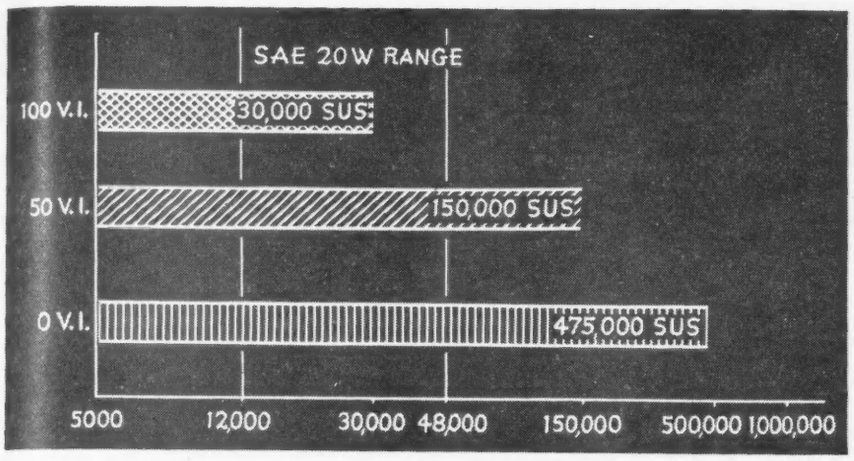
D. The viscosity of the winter grades (5W, 10W and 20W) will be based on a temperature of 0 deg. F., as this temperature more accurately defines an oil's viscosity characteristics at low ambient temperatures. The remaining grades are based on 210 deg. F. because present-day crankcase operating temperatures have made the 130 deg. F. base obsolete.

Three yardsticks, applied to motor oils, determine

The viscosity of an oil is a measure of its resistance to flow and may be regarded as the internal or fluid friction of the oil. Viscosity is generally expressed in Saybolt Universal Seconds (S.U.S.) at some temperature (usually 0, 100, 130 or 210 deg. F.)

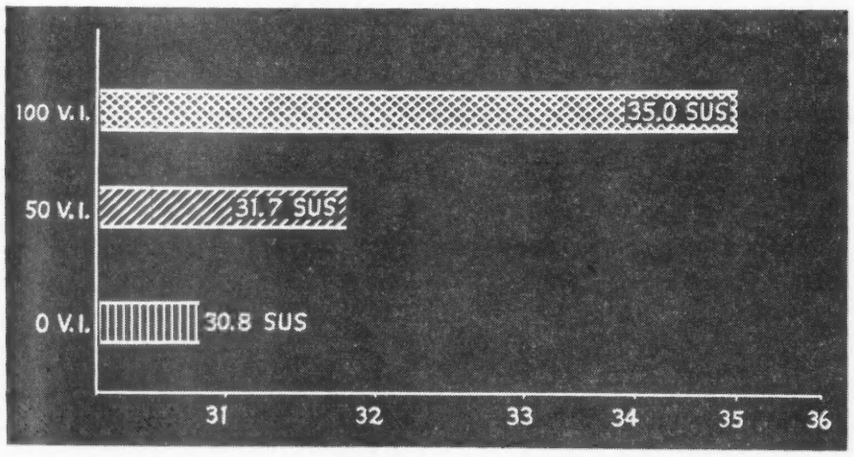
The Society of Automotive Engineers first classified oils on the basis of their viscosity only and designated the various grades with a number. In 1950 the present classification was revised to be fully effective April 3, 1952. This period gives buyers time to alter their specifications, the engine manufacturers to make any necessary changes in their recommendations and the refiners and sellers to make the necessary manufacturing and inventory adjustments, all with a minimum of confusion. Most authorities agree that the changes are desirable and once generally accepted, the system will be workable and actually simpler to comprehend.

Specifying an oil's viscosity grade is not sufficient to guarantee good performance in an oil. For example, the new SAE classification requires that an SAE-20 oil have a certain



Effect of viscosity index upon viscosity. Here three SAE 20 oils were chosen of 100, 50 and 0 V. I., each having a viscosity of 56 SUS at 210 deg. F. At 0 deg. F. the viscosities of the three oils would differ as shown. In this example only the 100 V. I. oil falls in the SAE 20 range. (Horizontal scale is a logarithmic scale adopted from the ASTM Standard Viscosity Temperature Chart.

Below. The same type oils were used, each having a viscosity of 30.000 SUS at 0 deg. F. At 350 deg. F. their viscosities would be approximately as shown. (Adapted from ASTM Chart)



your lubricant's adaptability to operating conditions

By C. G. Rood
Pure Oil Co.

viscosity at 210 deg. F., but as all operators know an SAE-20 oil must perform at internal engine temperatures ranging from below freezing to 300-350 deg. F. and that its viscosity changes with temperature. To indicate an oil's flow characteristics over this wide span of temperatures, refiners use the terms Viscosity Index and Pour Point in addition to the SAE classification. The Viscosity Index is a number indicating the effect of change of temperature on the viscosity of an oil. The viscosity of all petroleum lubricants changes rapidly with temperature and different oils varying degrees of viscosity change as the temperature increases or decreases. To establish a scale for comparative purposes a selected paraffin base oil was arbitrarily assigned a Viscosity Index of 100 and a selected Coastal type oil was designated as O.V.I. This established the basis that an oil having a high V.I. will undergo less viscosity change or a certain temperature change than an oil of lower Viscosity Index.

Fig. I shows the effect of viscosity index on the viscosity of an oil. Consider three SAE 20 oils all having a viscosity at 210 deg. F. of 56 Saybolt Universal Seconds, but each having a different viscosity index. It would be expected that at temperatures in the vicinity of 210 deg. F., which approximates the operating crankcase temperature of many moderate duty truck engines, that the flow characteristics of these oils would be the same. However, as was stated previously, these oils are often expected to function under cold starting conditions. As shown in Fig. 1, at 0 deg. F. there is a considerable difference in the three oils' viscosity. Under cold starting conditions the 100 V.I. oil will offer much less resistance to engine starting and will more readily flow to the bearings as compared to the lower V.I. oils. In summary, the 100 V.I. oil in this example in addition to having all the characteristics of an SAE-20 oil (which is defined at 210 deg. F., an operating temperature) would also have the characteristics of a winter or SAE-20W oil. Therefore, since it meets both requirements, it could be branded SAE 20/20W. The lower V.I. oils used in this example would be entirely too viscous at low temperatures and therefore could not be entirely suitable as winter oils. Their viscosities exceed the limits for SAE-20W oil.

When considering the low temperature characteristics of an oil, it is important to recognize the difference between pour point and Saybolt Viscosity at 0 deg. F. Unfortunately, the Saybolt Viscosity at 0 deg. F. values do not consider the effect of the wax crystalline structures which may occur at low temperatures. Viscosity values at 0 deg. F. can be considered only as an indication of the oil's viscous drag during engine cranking. The operator must also be certain that the oil will flow at the lowest expected temperature.

A paraffinic type oil, when cooled to a sufficiently low temperature becomes stiff and non-flowing due to the formation of paraffin wax crystals.

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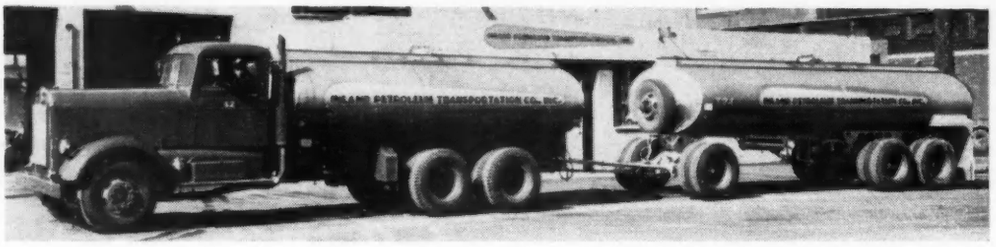

Convertible Stands Aid Engine Overhaul

Simple, efficient, shop-made equipment serves several purposes by use of jigs, fixtures, adapters. These include stands used by the mechanics in the overhaul of engines, cylinder heads, transmissions or differentials

By Warren A. Crane

A PETROLEUM DISTRIBUTOR well known for the progressive ideas used in the operation of its shop is the Inland Petroleum Transportation Co. of Seattle, of which R. J. Monroe is president.

Cylinder Head Overhaul Stand

ONE of the most interesting of its innovations is a cylinder head overhaul stand, shown in Fig. 1. It was designed in the shop by Carl Seaberg, its maintenance superintendent.

This device is so made that a cylinder head can be revolved in any position. It measures 22 in. in width by 36 in. in length, and stands 32 in. above the floor. The stand enables the mechanic to do his work easily and quickly. The attaching parts and construction details are shown in Fig. 2.

Another useful device employed by the company in its repair shop is a large, heavy-duty, adjustable, engine overhaul stand, shown in Fig. 3. It moves the engine in any position required by the mechanic doing the overhauling job. It can whirl the engine around in wind-mill fashion by means of a crank, saving time and much lifting.

This stand is 55 in. in height from the floor, with engine completely assembled. It enables the mechanic to work on the job without standing on a box or platform.

Differential Stand

A TRANSMISSION and differential overhaul stand is another innovation which, when fitted with several adapters or jigs, makes it an all-around useful shop item. It is bolted to a wall in a convenient location.

This is a very compact piece of equipment, which makes it possible for the mechanic to do his job in the minimum of floor space. Fig. 4 shows the stand's construction details.

Fig. 5 the jig used for differential overhaul. Fig. 6 shows the layout of this adapter. The stud holes are laid out by placing differential carrier gaskets on the 18-in. square plate.

This device allows the component to be rotated into desired position. It can be locked into the desired working position by drilling a hole through plate, and through overhaul stand, and dropping a bolt through the holes. If desired, several holes can be drilled through the stand for various positions.

Fig. 7 shows adapter used for Brown-Lipe Transmissions, Numbers 8241 and 8031. This adapter can be varied to fit other types of transmissions.

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FIG. 1. (Left) The cylinder head is held between two end brackets allowing the units to be rotated by the mechanic as needed

FIG. 2. In the diagram below, the various materials used in this fixture may be seen together with size and assembling instructions. The end bracket shown to the left may be increased in height for larger heads. The end-to-end measure will depend upon the length of the cylinder head used most by the fleet. Adapters may be applied for size variations

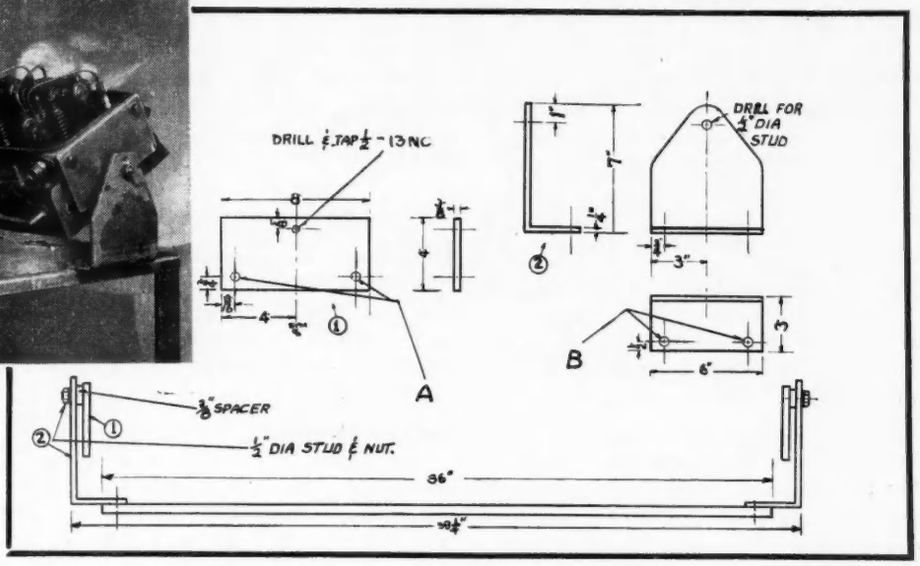
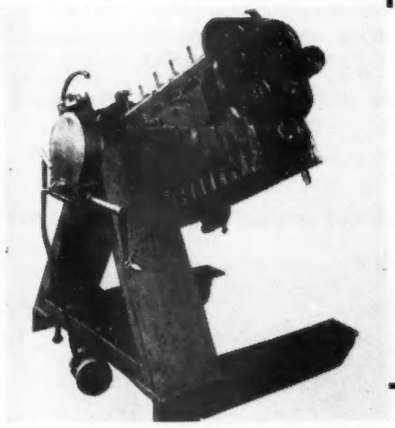


FIG. 3. Overhaul stand (Below) will handle a complete engine assembly, turning it to any position or angle for work at stand-up height. Action of the stand is by the crank shown at the center of the support steel. The stand is portable and may be moved about the shop for departmental service



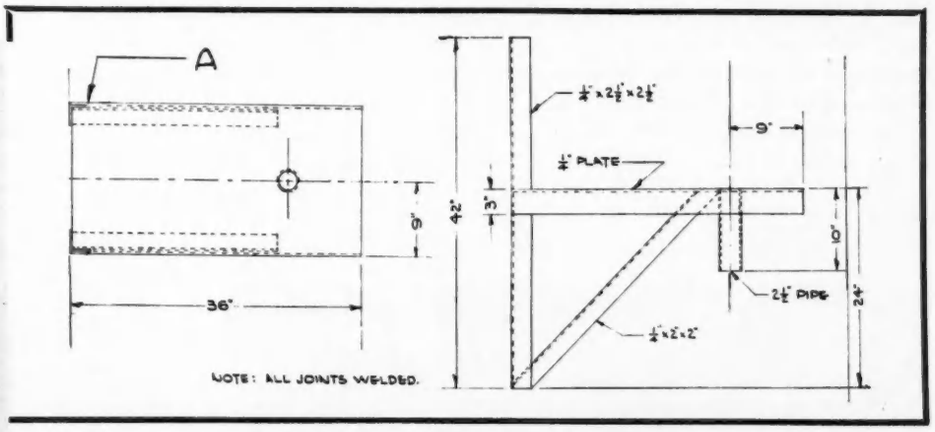
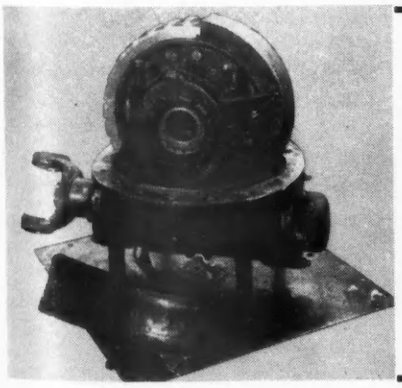
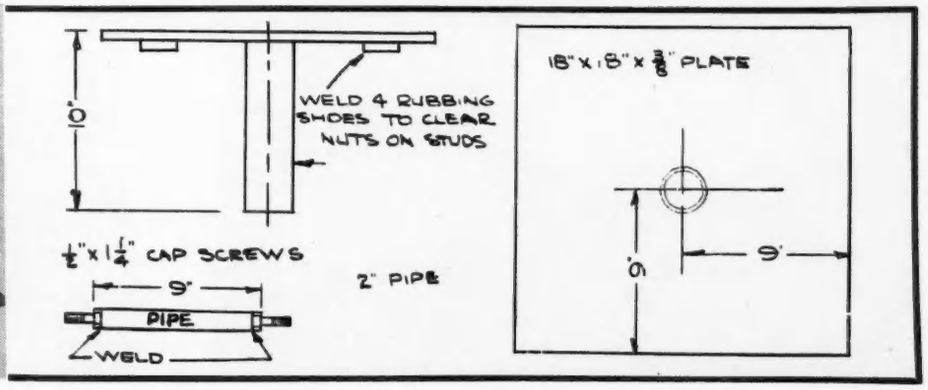


FIG. 4. The all-weld frame as shown above may also be adapted to meet the size need of the individual fleet. The tensile and structural factor of the steel should be considered as well as the weight of the most common engine handled before any change in dimensions or steel weight is made

FIG. 5. The differential stand is made on a base of ⅜ in. plate to which 4 pipe studs are bolted. These hold the assembly to the base plate which may be moved to any position on the bench

FIG. 6. This diagram shows the various dimensions of the differential stand





Convertible Stands Aid Engine Overhaul

Continued from Page 56

This illustration also shows one angle plate slotted to fit various widths of transmissions between power take-off apertures to which vertical plates of adapter are bolted. An adapter can also be made for a B-L 7841 which screws into a drain plug hole in bottom of case.

Injector Room Only 6x10

ANOTHER interesting installation in the Inland Petroleum terminal is a special room where injectors are tested and overhauled. It has proved to be a very efficient and successful operation, and shows how little space and material are required to have the protection it provides. It is 6 ft in width and 10 ft in depth, of wood construction and completely sheathed with aluminum sheeting.

The interior of the room, shown in Fig. 8, has been completely sprayed with aluminum paint to give it a maximum of lighting and protection against other dust-collecting surfaces.

The entrance door to the injector room, shown in Fig. 9, has a filter in its lower panel which ensures a clean supply of air. A 500-cu ft exhausting fan, located at the right and above the entrance door, blows out the diesel fumes from the room when the injectors are being tested and keeps the air fresh.

Balcony Storage Saves Space

THE repair shop is equipped with a Budget electric hoist, connected with a moving trolley above it. This hoist is used to lift tires and barrels of oil to a balcony. The barrels are rolled from the hoist to a central pumping station.

This device has saved time and has proved to be very satisfactory because it has been possible to keep oil off the main floor, and ensure a maximum of working space in the shop.

The foregoing devices have been used by Inland Petroleum Transportation Co. with successful results. They have been factors in reducing accidents, cutting job time, and promoting a greater degree of efficiency in operation.

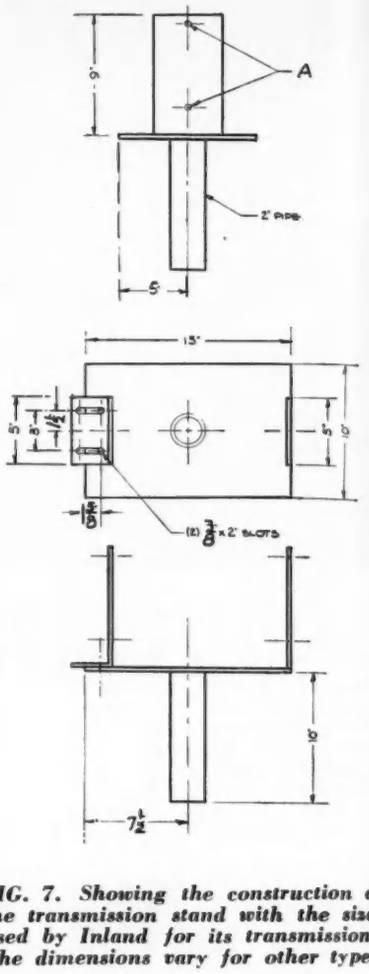


FIG. 7. Showing the construction of the transmission stand with the sizes used by Inland for its transmissions. The dimensions vary for other types.

FIG. 8. The injector room has been made dust resistant

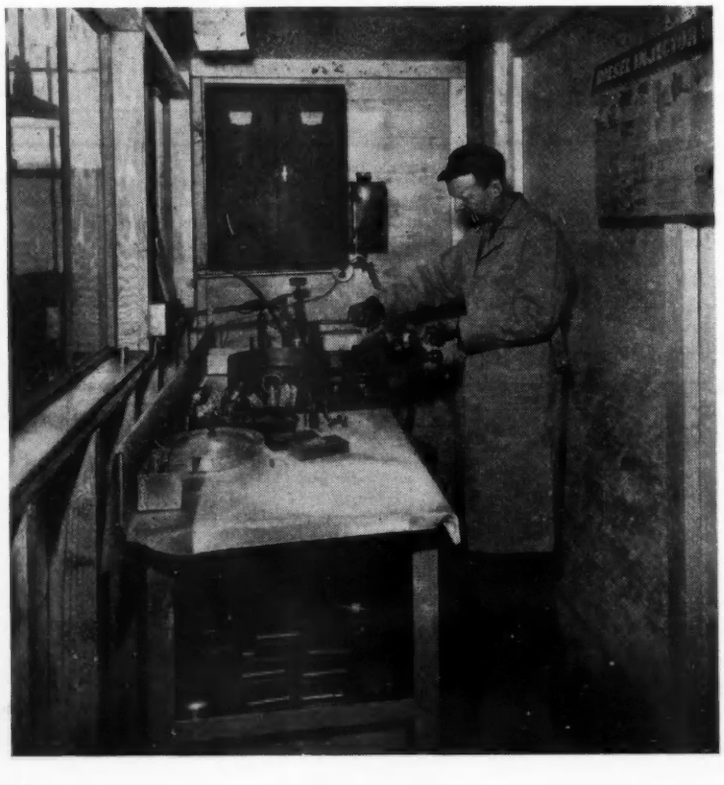


FIG. 9. Intake and exhaust vents have air filters

. . . INTERIM REPORT*

Transit Cleaning Subcommittee

Initial report on recent survey of bus cleaning methods as related to types of finishes, compounds, frequency, personnel

By H. Feldman
Chairman, Subcommittee on Vehicle Cleaning
American Transit Association, New York, N. Y.

SOME TIME AGO our subcommittee on vehicle cleaning sent questionnaires to member companies of the A.T.A., asking about their cleaning practices. The tabulation resulting from this questionnaire was most revealing in that it did not indicate any uniformity whatsoever. That is about the only conclusion that this tremendous mass of factual information gave us.

We did attempt to average some of the information and these figures reveal, as an example, that the average transit operator washes the exterior of about 30 per cent of his fleet daily, and that approximately 1.45 man-hours are expended per day per vehicle for all types of cleaning.

Let's consider this last piece of information—1.45 man-hours per day per vehicle for vehicle cleaning.

$500,000 a Year for Labor

CAPITAL TRANSIT CO. pays its cleaners $1.46 per hour. For the 900 vehicles, at this rate, we are expending about a half million dollars per year in labor alone for vehicle cleaning. This represents about 2 cents per mile, or 12 per cent of our total cost; and this for labor only.

This should certainly be reason enough to cause us to re-appraise our practices. This should most certainly urge us to engineer this necessary work. This should most certainly require that vehicle cleaning be removed from the category of a necessary evil to a well-supervised, carefully calculated operation.

The appearance of vehicles, as the public sees them, is most difficult to evaluate. From a functional standpoint, there is little reason for attempting to keep vehicles cleaned. Clean vehicles will certainly not carry their passengers any better than those covered by traffic film and road dirt inside and out. However, whether a clean vehicle will attract and hold more riders than a dirty one is something else again, and whether a clean vehicle will last longer than a dirty one must, too, be considered.

Check Management Policy

WITH these few remarks, I would recommend that a careful policy study be made by all prior to the making of any kind of engineering study or, at least, that some study be made making certain that *all* and not just some factors are considered.

There is a tendency in making such a study to consider labor and cleaning agent costs only. But, in so doing, a large part of the real cost is not accounted for. It is necessary to consider at least the following:

1. Labor cost; 2. water cost; 3. cleaning agent cost; 4. amortization of fixed washing equipment; 5. cost of periodic replacement of washing equipment parts, such as brushes, motors, motor brushes, etc.; 6. electricity; 7. training; 8. overhead; 9. supervision.

A study which considers all of the above items of real cost, and undertaken from time to time, will reveal the very large number of maintenance dollars involved.

It is necessary that certain managerial prerogatives be established, after which the maintenance department can give practical consideration to the problem. The managerial prerogatives referred to may be established by considering the following:

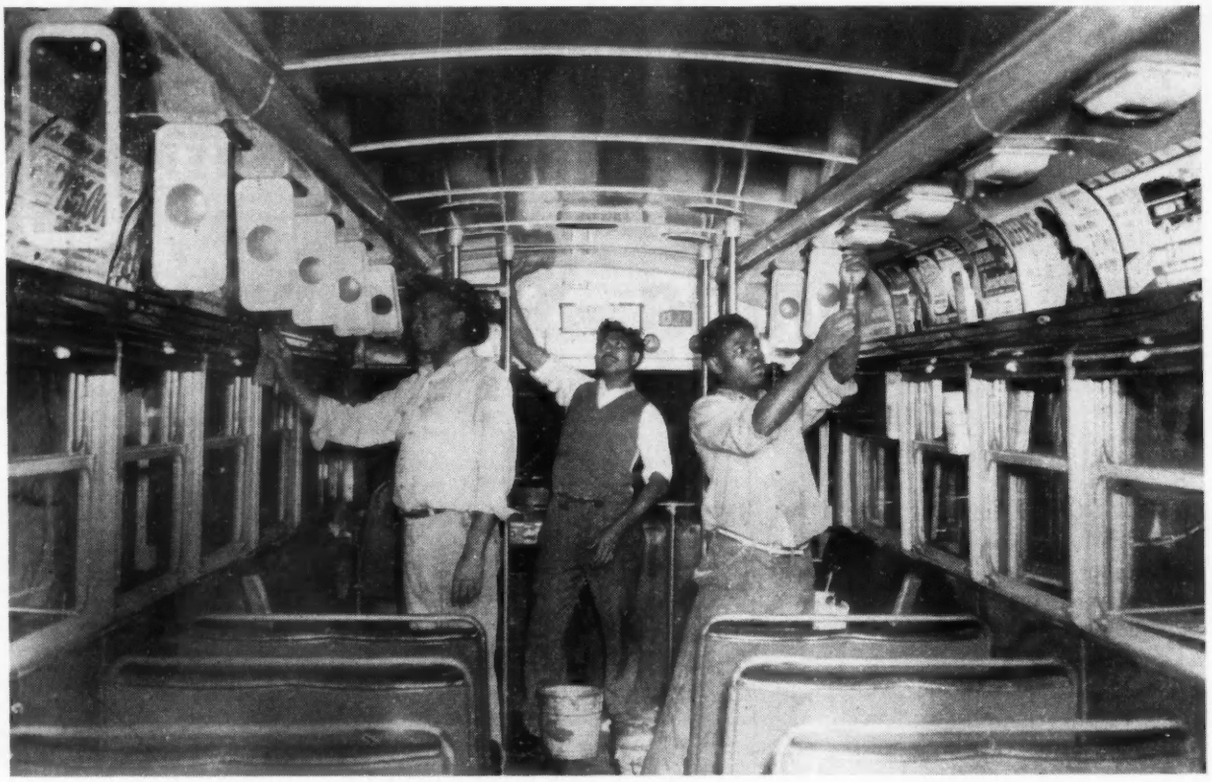
1. Standard of appearance desired; 2. public relations factor; 3. quality of cleaning; 4. expense warranted; 5. labor rates; 6. requirements of local regulatory body.

After the administrative considerations have been established, then, and only then, can the job of engineering cleaning be started.

The following are the aspects of

(TURN TO PAGE 135, PLEASE)

*This report was presented by the author at the 70th Annual Convention of the American Transit Assn. in Cincinnati. It is presented in full, except the part concerning Capital Transit's Mobile Cleaning Team, which has been expanded and appears on pages 60 and 61.—THE EDITORS.



Part of the Mobile Cleaning Team in action. Each man, having one task, acquires speed and expertness

Capital Transit's "Scrub Team" Housecleans 15

New experiment with reduced personnel and Mobile Cleaning Team already shows good

FOR YEARS it has been the practice at the Capital Transit Co. to scrub the interior of motor coaches on a periodic mileage basis, using personnel assigned to the individual operating garages. This system seemed to be fairly satisfactory and, for the most part, gave Capital Transit what appeared to be a fairly satisfactory interior appearance. Prior to the 6000-mile inspection, the vehicle was scrubbed.

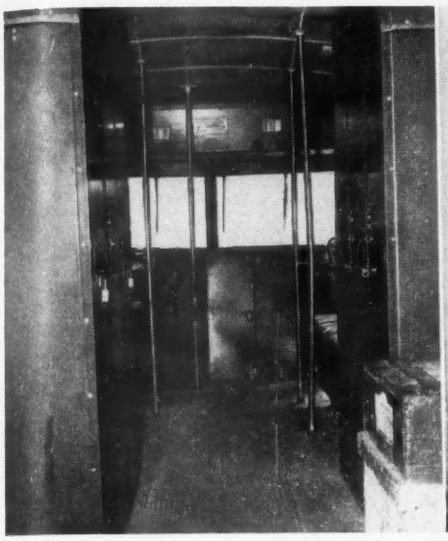
Inasmuch as Capital Transit has six operating garages and, therefore, six different groups of individuals concerning themselves with this work, there were naturally at least six different variations of the established practices. Further, since all buses do not accrue their mileage at the same general rate, there were variations in interior scrubbing periods from a time standpoint. This latter condition was not considered to be serious because it was generally felt that the accumulation of dirt varied with the mileage, number of passengers carried, as well as with time.

The personnel set-up on this property is such that individuals who are engaged in interior scrubbing and cleaning are permitted to do other work. It was, therefore, most natural for a garage foreman to frequently reach into this pool of men when an emergency arose.

In an effort to effect some economies, certain forces were reduced within the garages and most of this reduction affected itself in the cleaner grades.

It is a practice at Capital Transit to do interior painting and touch-up work only when the vehicles are sent to the main bus shop, for that purpose or for other work.

Some few months ago, it was decided to re-research the interior scrubbing practices with an eye toward standardizing procedures, doing a better job and, perhaps, doing some



Shown below is the over-age bus which serves as the mobile cleaning department. Left, above, is a view on interior looking front; right, above, view facing the rear

Buses Daily

results in cleaner buses

By H. Feldman
Supervisor of Automotive Maintenance
Capital Transit Co., Washington, D. C.

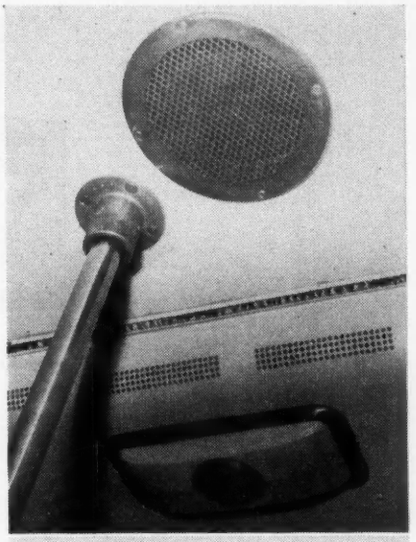
additional work. We wanted to "spruce-up" bus interiors. After a great deal of thought and planning, it was decided to establish a Mobile Cleaning Gang and to place a full-time supervisor in charge of this gang. We have proceeded and, though we are still organizing, our practices and procedures have become fairly well standardized.

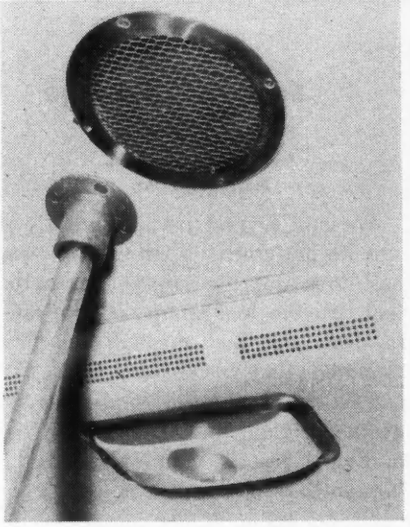
Mobile Cleaning Department

AN OLD bus was taken out of dead storage and equipped with clothing lockers; a paint locker; a cabinet for cleaning materials, brushes, tools,

(TURN TO PAGE 105, PLEASE)

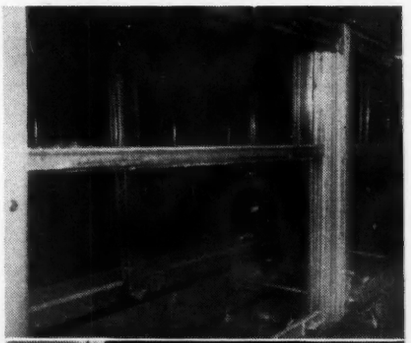
Experiment tried to speed production is flushing interior with hose. Rear wheels are blocked for fast drainage





Top photograph shows soilage not removable by ordinary cleaning. Lower, after crew's organized "housecleaning"

Aluminum sash frames acquire stains difficult to remove even with steel wool. Lower view shows condition after cleaning with new chemical compound



SHOP HINTS FROM FLEET SHOPS

1. Fuel Tank Change

by Preston Coleman
Alan Wood Steel Co.
Norristown, Pa.

We had several trucks that would run out of gasoline when the tank was half to a quarter empty due to the fact that the fuel pump was not able to draw the fuel through the top-mounted line inside the tank. To correct this trouble we simply plugged up the original line at the top of the tank and installed an outlet in the bottom in what is more or less a conventional way.

(Next time you have similar "fuel pump troubles" check for a stopped up line inside the tank—or a line permitting air to be drawn in at this point.)

2. Drill Chuck Holder

by Frank P. Coulomb
Inglewood, Calif.

In production work a handy unit to use in drilling and tapping holes is this drill chuck V-block holder. As shown in the drawing the holder is made from a heavy V block to which is fastened a quick removable clamp for holding the end of an old drill press spindle. A handle is clamped to the chuck for quick release and tightening.

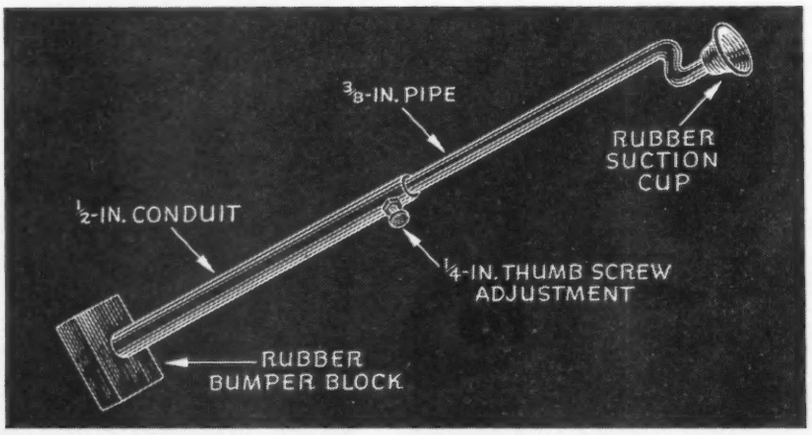
This holder is handy for drilling and tapping around sleeve nuts and holds parts securely during the work.

3. Brake Bleeder Adapter

by O. S. Jefferson
Safety Convoy Co.
Dallas, Tex.

Here is a sketch of my brake bleeder adapter, used on vehicles where the master cylinder plug has

HINT OF $25 THE MONTH

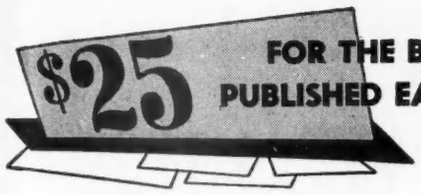


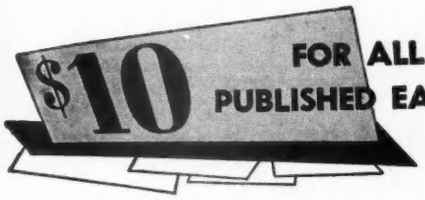
Hood Holder

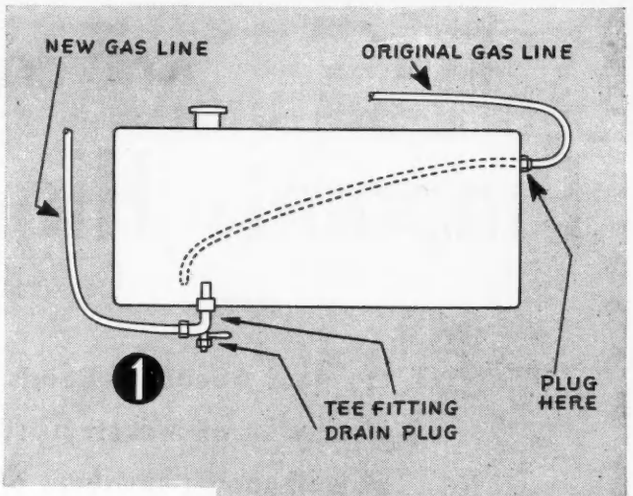
by Thomas E. Davis
Barbara Ann Baking Co.
Los Angeles, Calif.

This tool can be made in 15 minutes and will save that much time each time it is used. Simple as it is, it replaces the second man when checking stop lights, air brakes and similar work. It is a necessary safety measure when working under some types of hoods.

This adjustable holder is made







to be reached through a small opening in the floor boards.

We had trouble keeping the shoulders on these plugs until we began using this adapter. Now it is simply a matter of inserting this extension into the filler opening and connecting the line to the bleeder.

The pipe itself is ⅛ in. and about 10 in. long. It is threaded into an old filler plug and fashioned with a handle of ⅜-in. tubing. Fittings are sealed with thread compound and pulled up tight to prevent them from unscrewing.

from ½-in. thin wall conduit of any length required for the particular job. Three inches from the end a ¼-in. hole is drilled and a nut is welded over it to take a ¼-in. thumb screw.

The sliding section is made from ⅜-in. pipe or regular cold rolled steel, bent at one end as shown and fitted with a rubber suction cup. Thus the extension end will hook over the hood to hold it up, or will fit over the brake or clutch pedal when working on these parts, and will not slip.

4. License Plate Holder

by E. J. Giroux
N. E. Power Service Co.
Worcester, Mass.

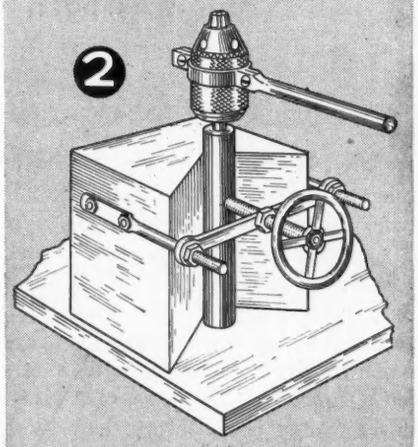
We have had a lot of tail light breakage and reflector bumping resulting from back up accidents and have come up with a workable solution to the problem. We simply mount the tail light, license plate bracket and any reflectors needed on a bracket and hinge the complete unit with a 6-in. T hinge, thus permitting the assembly to swing with any impact. The hinge is mounted to the body and given sufficient bind so that the plate and light does not swing freely. If the thing is hit, it can be straightened up in a matter of seconds.

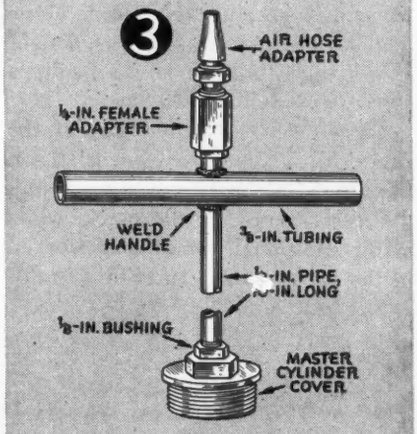
5. Generator Tester

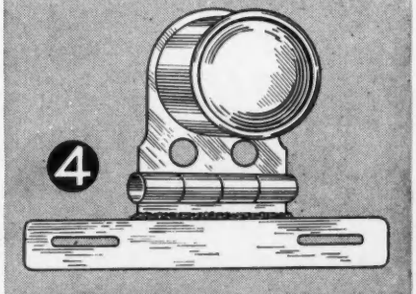
by Jean Babin
Columbian Laundry
Newark, N. J.

This generator test bench was made in our shop at small cost. It has saved us a great deal of money in generator and starter rebuild work.

We had a sliding rack made in our machine shop, picked up a 2-hp motor and put a V pulley on the motor to turn up 1750 rpm. With wire and battery clips connected to a regular voltammeter we had a bench tester. ED. NOTE—For work with other units this tester needs a variable speed attachment. Provision is not made for load tests on the starter with this arrangement. A good generator-starter test bench should be employed when available.







ATA CONVENTION

Pinpoints Highway Problems

"Project Adequate Roads" gets top billing in week-long discussion of industry problems in Chicago. A battery of well-known speakers outline bright history of motor transport, establish objectives in planning for future

THE WEEK of October 22nd will long be remembered as the week the trucking industry took over Chicago in general and the Stevens Hotel (since renamed the Conrad Hilton) in particular. The conservative and sometimes unfriendly *Chicago Tribune* heralded the event with a 30-page supplement to its regular Monday morning issue. More than 1800 registered convention guests taxed the hotel facilities to the utmost and set a new all-time high in the hotel's convention receipts. Hundreds more, unable to secure registrations, sought access to such open house facilities as could be extended.

Eight separate conferences of the American Trucking Associations, Inc., held individual meetings during the early days of the week while many additional committees worked in the background. In such a multi-ring atmosphere, it was difficult to pin point any one underlying tone to the convention. But by week's end, such a tone had become clear. Real concentration was being put on the highway problem.

Already many individual manufacturers had gotten into the act. Among them — Goodyear, Firestone, White, General Motors, Timken, Fruehauf, Trailmobile, plus many others. Many of the principal speakers touched on the acute nature of present traffic congestion problems. But it remained for Walter Belson, ATA's able director of public relations, to present for the first time at any public gathering a brand new highway program known as PAR. The initials stand for *Project Adequate Roads*, and it is hoped that this program will be the means of implementing a real highway action program, and of coordinating all approaches to the problem now under way.

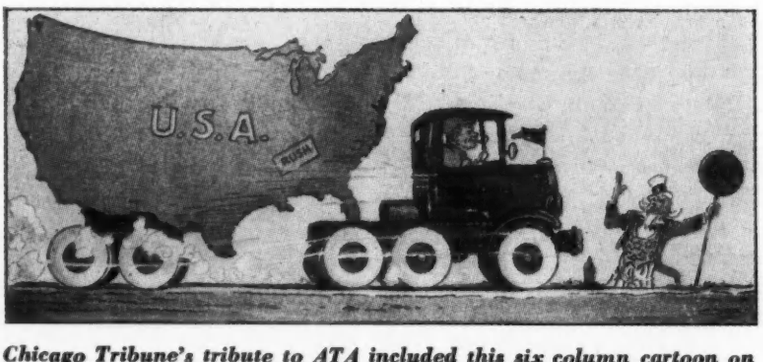
PAR's history is interesting. At a now famous meeting of ATA's committee of 100 held on May 24, 1951, the highway problem was discussed with a number of manufacturers and highway user groups. Arthur C. Butler, director of the National Highway User's Conference, was there, and back in Washington, he put the full resources of his organization to work to produce a practical method of implementing a highway research and improvement project that would be acceptable and agreeable to *all* highway user interests. The result is PAR.

What Is PAR?

VERY basically PAR takes the premise that many of the nation's highways are in deplorable condition due primarily to the unexpected rise in traffic, the war years in which highway building was practically dormant, and shrinkage of the value of the highway dollar. But it goes much further than that, for obviously not all highways need improvement in the same proportion as others. The problem is to find out *how to get first things first.*

Based largely on research done by the Arizona Highway Department, PAR suggests that a Sufficiency Rating be established for all existing highways based on an ideal of 100. Forty points would be accredited to traffic service (or frequency) and thirty points to safety (see chart at right).

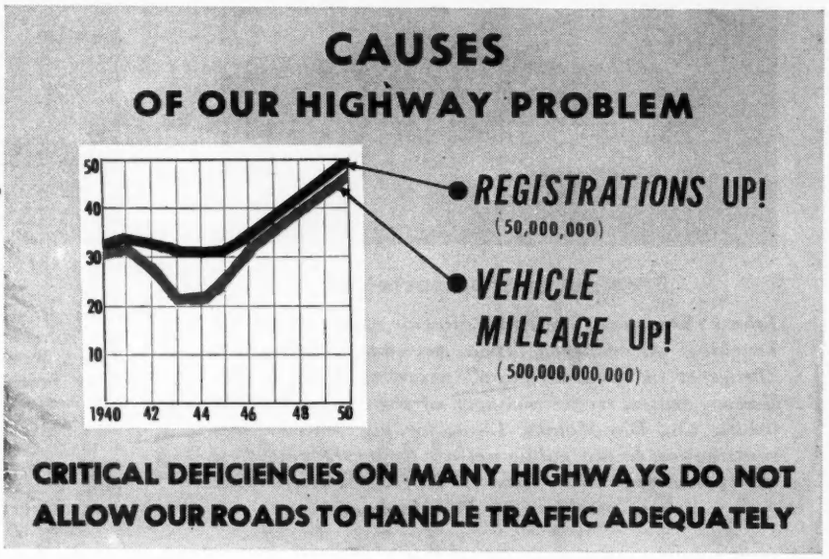
The Nation on Wheels—Keepin' 'Er Rollin'!

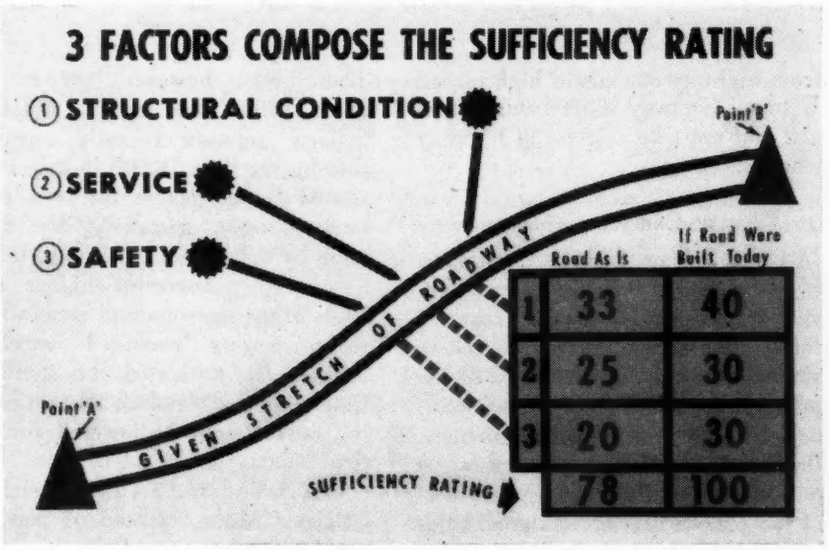


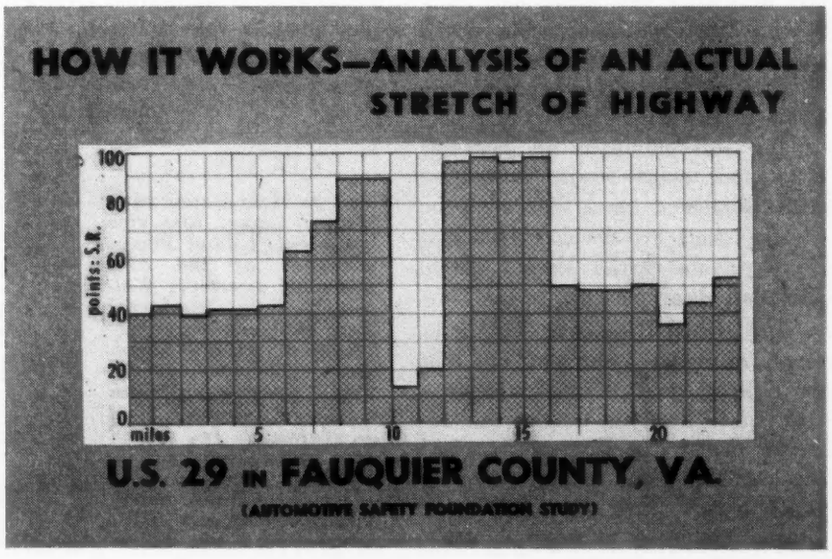
Chicago Tribune's tribute to ATA included this six column cartoon on first page of special supplement (reproduced by permission)

Project Adequate Roads

Three charts (right) from PAR's extensive slide presentation show primary cause of highway problem (top); major factors in determining Sufficiency Rating (center); and final result of typical highway section study.







Against such a rating scale, every section of the primary highway system could be appraised and given a specific Sufficiency Rating. These can be prepared in graph form as shown at right. The sample sections for U. S. Route 29 in Fauquier County, Va., shows a Sufficiency Rating of better than 90 per cent on some parts, better than 40 per cent on most of it, but less than 20 per cent on one two-mile section.

It is PAR's proposal that each state would make its own Sufficiency Rating of all of its roads and then by comparing all available charts quickly determine exactly where the money should be spent first by building up the lowest rated areas in proper sequence.

It is important to note that most of the necessary data required for such a study is already on file with most of the State Highway Departments. The problem is merely one of coordinating these on a national scale.

The program has the marked advantage of automatically providing an annual review of the highway situation and an annual appraisal of the most needed projects. Initially it might be decided that only the road sections showing a Sufficiency Rating of say 20 per cent should receive immediate attention. As the situation improves, this percentage could be raised or lowered as available funds and resources are weighed against current availability.

Most important of all, PAR presents a practical means of getting the nation out of its highway muddle in a manner that should be acceptable to *all* highway user groups. Already it has received favorable comment from the passenger car users, and

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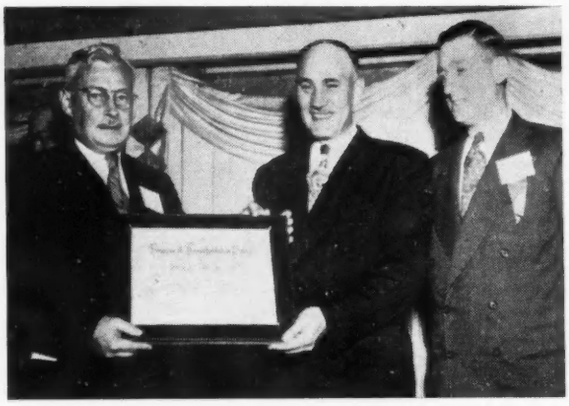

Progress in Transportation

John F. Lawrence, managing director of the American Trucking Associations, Inc., presents ATA's first "Progress in Transportation" award to William McKowen, center, traffic manager of the Meredith Publishing Co., Des Moines, Iowa, for his "outstanding contribution to the public welfare by improvement in transportation," while Fred B. Hufnagel, Jr., second vice president of ATA, looks on

Roadeo Winners

First place winners in each of the four classes of the American Trucking Associations 1951 National Truck Roadeo wear victory smiles as they pose with their prize trophies in Chicago's International Amphitheater. Left to right are Albert D. Pomahatch, St. Paul, Minn., winner in the tractor and single-axle trailer class; Alex Adamski, Chicago, tractor and tandem-axle trailer; John H. Castner, Portland, Oregon, truck and full trailer; and James E. Tucker, Charlotte, North Carolina, straight truck

from highway officials in high places. With all highway users behind it, it can and must be sold to all highway officials.

Private Carrier Conference

AT the Private Carrier Conference held during the ATA annual convention, Joseph E. Keller, attorney for the conference, gave an excellent summary of the current status of the private carrier. Citing recent court decisions on the Lenoir, Schenley, Burlington Mills and other cases, he pointed out that the current position of the private carrier was good. But he warned of impending legislation that may upset this apple cart. Senate bill 1889 which was introduced this fall (by request) by Senator Johnson of Colorado is heralded as a straw in the wind. Also the report of the sub-committee on hearings conducted under Senate Resolution S-50 (discussed on a separate page of this issue) are developments that every private carrier should watch. The road ahead may not be too rosy.

W. A. (Bill) Bresnahan, ATA's director of research, pointed out that the ultimate goal of anti-truck interests was to decrease weights and increase taxes. He particularly cited the increased taxes recently put into effect in New York state and in adjoining states on a reprisal basis. There was, however, encouraging news about the weight situation. Senator Johnson recently conceded that higher than 18,000 lb axle loads should be acceptable for New England, at least. Similarly, Mr. Fairbank of the Bureau of Public Roads has recently conceded higher axle loads in the metropolitan areas where storm sewers provided excellent drains. He reiterated the stand of Commissioner Knudson that no existing laws should be lowered for the time being.

Ben R. Miller, ATA's industrial relations director, warned of pending problems with regard to the labor shortage. Referring to remarks he had made a year ago (and reported in CCJ), he pointed out that the manpower reserve was steadily diminishing as war industries and the military begin gobbling up the 4,000,000 workers they expect to employ by June of '52. The unemployment pool is now at a level of 1.5 million which is really no unemployment at all, as nearly all of these are unemployable, at least as far as drivers and mechanics for the truck industry are concerned. Miller urged all truckers to survey their manpower problem carefully, prepare for future contingencies, and particularly avoid wasting skilled labor. He cited the case of several shops where experienced mechanics were performing menial jobs that could be done by unskilled labor.

The conference adopted a resolution urging the ATA Executive Com-

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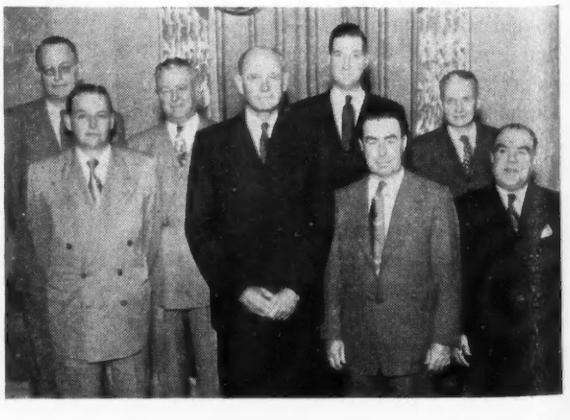
ATA Officers

Left to right, front row: Walter Carey, first vice president; Leland James, chairman of the ATA board of directors; Walter Mullady, president; Ted Rodgers, honorary chairman of the board. Back row: George V. Estes, treasurer; Chester C. Moore, secretary; Fred B. Hufnagel, Jr., second vice president; C. J. Williams, third vice president; John Ruan, fourth vice president, was absent when photo was taken.



Extra analysis of recent tire performance and maintenance survey evaluates the value of the various maintenance frequencies in the light of their profit to fleets by increasing tire life

SURVEY No. 22

PART 5

Analysis by A. W. Greene
Managing Editor, Commercial Car Journal

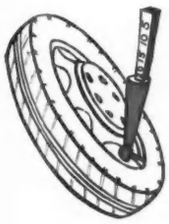
Proper Tire Care Pays Mileage Dividends

THE ORIGINAL INTENT of the recent tire performance and maintenance survey was to obtain a record of current fleet practices in this department—with special emphasis on the various types and frequencies of the maintenance functions. It was only after the various frequencies were reported that curiosity, as to which paid the best dividends, spurred this extra analysis.

This study attempts to relate certain tire maintenance data found in Tables 1, 2, 3 and 4 of Survey No. 22, Part 2, and Table 1 in Part 3, with the tread life data contained in Table 1 of Part 1, which appeared in the June, 1951, issue.

It will be noticed that, whereas as many as 184 fleets contributed useful information, this analysis reverts to the 170 fleets that supplied the most complete cost and tread life data reproduced in Table 1, Part 1.

It is recommended that the information contained in the accompanying tables be studied in the light of the data published. For example, it should be remembered that the average number of tire sizes per fleet is five; that several tread types and cord materials are in use; that all of these factors have been reduced, for analysis convenience, into a single overall fleet tire per-



Is Daily Tire Pressure Checking Better than Weekly?

Table 1

Fleets checking tire pressure daily gain about 3000 miles more per tread than those checking weekly; semi-weekly checkers average 2000 less

VOCATIONAL GROUPS	Total Number of Fleets Reporting	REPORTED TREAD LIFE (All Sizes) Range (Last 000 Omitted)	Calculated Average†	TIRE LIFE AS AFFECTED BY TIRE PRESSURE CHECKING FREQUENCIES* WEEKLY (54.19%) Low of Group's Tread Life Range (Last 000 Omitted)	Average Tread Life for This Group (Last 000 Omitted)	High of Group's Tread Life Range (Last 000 Omitted)	DAILY (16.20%) Low of Group's Tread Life Range (Last 000 Omitted)	Average Tread Life for This Group (Last 000 Omitted)	High of Group's Tread Life Range (Last 000 Omitted)	SEMI-WEEKLY (12.85%) Low of Group's Tread Life Range (Last 000 Omitted)	Average Tread Life for This Group (Last 000 Omitted)	High of Group's Tread Life Range (Last 000 Omitted)
FOR-HIRE CARRIER	20	18 - 160	40,840	25	39	70	18	44	160	20	39	45
FOOD DISTRIBUTION	42	8 - 120	35,020	12	36	120	18	41	90	8	29	55
GOVERNMENT	28	10 - 95	33,448	12	30	72	10	35	95	25	33	40
CONSTRUCTION & MINING	2	15 - 45	28,725	...	...	...	15	29	45	...	...	...
INDUSTRIAL	6	20 - 70	47,300	40	58	70	30	64	85	20	20	20
PETROLEUM	7	20 - 85	48,064	25	44	50	25	52	85	20	48	65
PUBLIC UTILITY	30	9 - 135	32,663	9	34	135	...	...	...	16	32	45
RETAIL DELIVERY	4	16 - 80	36,835	16	34	80	20	38	45	30	39	50
TRUCK RENTAL	17	9 - 90	34,582	28	33	55	9	35	60	20	37	90
BUS FLEETS	14	15 - 93	47,028	15	43	68	40	50	93	25	48	70
TOTALS & AVERAGE ALL VOCATIONAL GROUPS	**170**	**8 160**	**38,456**	**9**	**37**	**135**	**9**	**40**	**160**	**8**	**38**	**90**

* From Table 1, Survey No. 22, Part 2, Commercial Car Journal, July, 1951, Page 67.
† From Table 1, Survey No. 22, Part 1, Commercial Car Journal, June, 1951, Page 67.

formance factor. The reader's own experience is called upon to interpret these variables in the light of his own conditions.

Daily Pressure Checks Seem Best

THE relation of fleet tire pressure checking frequencies to tire life is indicated in Table 1 of this analysis. The bottom line, which summarizes tread life for all vocational groups, shows that fleets that check pressure daily average greater tread life than fleets employing the two other frequencies.

At first glance, the 2000- and 3000-mile difference may seem to be a small gain for the extra trouble involved. However, if this figure is multiplied by the number of tires in service per fleet, the net result can mean a handsome and profitable dividend. Not to be overlooked, also, are other advantages not shown in the table—and too difficult to estimate—such as a reduction in tire road failures.

Of course, as in all such tabulations, a number of fleets show much greater average tread life than the overall average—and some appreciably less. To a certain extent, we were disappointed that any fleet in the daily tire pressure checking category came up with less than the overall national average tread life—38,456 miles. We reasoned that any fleet that takes such good care of its tires as to check pressure daily, just had to get better than average results. After a lot of digging and studying, we came to the conclusion that the local operating conditions of some of these fleets were so tough that, were it not for the daily checks, their tire performance story would be pretty sad.

Foreign Object Removal

SOMEWHAT less conclusive are our findings relative to the removal of foreign objects from tires at daily intervals. Table 2 shows that the fleets that examined tires daily for nails, tacks, pieces of glass, and other particles, showed about the same tread life as the fleets that performed this maintenance operation weekly. Actually, they were a shade ahead of the weekly group but not enough to send them up into the 40,000-mile bracket.

Here, again, it may be assumed that many of the fleets making this check daily find it necessary due to poor road conditions, and,

How Often Should Tread be Cleaned of Foreign Objects?

Table 2

Daily and weekly removal of foreign objects net about same results. Longer frequencies, such as monthly, do not contribute to good tire mileage

VOCATIONAL GROUPS	Total Number of Fleets Reporting	REPORTED TREAD LIFE (All Sizes) Range (Last 000 Omitted)	REPORTED TREAD LIFE (All Sizes) Calculated Average†	TIRE LIFE AS AFFECTED BY FOREIGN OBJECT REMOVAL FREQUENCIES*: WEEKLY (28.49%) Low of Group's Tread Life Range (Last 000 Omitted)	WEEKLY (28.49%) Average Tread Life for This Group (Last 000 Omitted)	WEEKLY (28.49%) High of Group's Tread Life Range (Last 000 Omitted)	MONTHLY (13.41%) Low of Group's Tread Life Range (Last 000 Omitted)	MONTHLY (13.41%) Average Tread Life for This Group (Last 000 Omitted)	MONTHLY (13.41%) High of Group's Tread Life Range (Last 000 Omitted)	DAILY (10.06%) Low of Group's Tread Life Range (Last 000 Omitted)	DAILY (10.06%) Average Tread Life for This Group (Last 000 Omitted)	DAILY (10.06%) High of Group's Tread Life Range (Last 000 Omitted)
FOR-HIRE CARRIER	20	18 – 160	40,840	25	37	50	30	40	70	18	45	160
FOOD DISTRIBUTION	42	8 – 120	35,020	12	33	120	8	33	90	20	39	60
GOVERNMENT	28	10 – 95	33,448	15	39	75	10	35	95	20	26	35
CONSTRUCTION & MINING	2	15 – 45	28,725	.....		.....	.....		.....	15	29	45
INDUSTRIAL	6	20 – 70	47,300	20	47	70	.....		.....	.....	.....	.....
PETROLEUM	7	20 – 85	48,064	40	50	80	20	46	85	.....	.....	.....
PUBLIC UTILITY	30	9 – 135	32,663	15	39	135	9	27	90	.....	.....	.....
RETAIL DELIVERY	4	16 – 80	36,835	30	37	80	16	34	75	25	40	49
TRUCK RENTAL	17	9 – 90	34,582	9	35	90	.....		.....	.....	.....	.....
BUS FLEETS	14	15 – 93	47,028	15	46	68	15	41	65	30	54	93
TOTALS & AVERAGE ALL VOCATIONAL GROUPS	170	8 – 160	38,456	9	39	135	8	37	95	15	39	160

* From Table 2, Survey No. 22, Part 2, Commercial Car Journal, July, 1951, Page 67.
† From Table 1, Survey No. 22, Part 1, Commercial Car Journal, June, 1951, Page 67.

Does it Pay to Check Front End Thoroughly and Regularly?

Table 3A

Fleets that check caster, camber and toe-in at regular intervals show 11,000 mile gain in tread life over average. "Never check" fleets lose miles

VOCATIONAL GROUPS	Total Number of Fleets Reporting	REPORTED TREAD LIFE (All Sizes) Range (Last 000 Omitted)	REPORTED TREAD LIFE (All Sizes) Calculated Average†	TIRE LIFE AS AFFECTED BY FRONT-END CHECKING PRACTICES*: CASTER-CAMBER ONLY (60.89%) Low of Group's Tread Life Range (Last 000 Omitted)	CASTER-CAMBER ONLY (60.89%) Average Tread Life for This Group (Last 000 Omitted)	CASTER-CAMBER ONLY (60.89%) High of Group's Tread Life Range (Last 000 Omitted)	CASTER, CAMBER, TOE-IN (at Predetermined Mileage 67.04%) Low of Group's Tread Life Range (Last 000 Omitted)	CASTER, CAMBER, TOE-IN (at Predetermined Mileage 67.04%) Average Tread Life for This Group (Last 000 Omitted)	CASTER, CAMBER, TOE-IN (at Predetermined Mileage 67.04%) High of Group's Tread Life Range (Last 000 Omitted)	NEVER CHECK FRONT END (17.32%) Low of Group's Tread Life Range (Last 000 Omitted)	NEVER CHECK FRONT END (17.32%) Average Tread Life for This Group (Last 000 Omitted)	NEVER CHECK FRONT END (17.32%) High of Group's Tread Life Range (Last 000 Omitted)
FOR-HIRE CARRIER	20	18 – 160	40,840	.....		.....	18	41	160	.....		.....
FOOD DISTRIBUTION	42	8 – 120	35,020	8	35	60	11	42	120	19	28	50
GOVERNMENT	28	10 – 95	33,448	10	30	75	10	46	95	15	24	50
CONSTRUCTION & MINING	2	15 – 45	28,725	.....		.....	20	31	45	15	26	35
INDUSTRIAL	6	20 – 70	47,300	20	39	45	30	55	70	.....		.....
PETROLEUM	7	20 – 85	48,064	.....		.....	25	56	85	20	40	50
PUBLIC UTILITY	30	9 – 135	32,663	.....		.....	9	33	135	.....		.....
RETAIL DELIVERY	4	16 – 80	36,835	20	38	60	30	46	80	16	27	45
TRUCK RENTAL	17	9 – 90	34,582	20	36	75	25	42	90	9	25	60
BUS FLEETS	14	15 – 93	47,028	.....		.....	30	54	93	15	40	55
TOTALS & AVERAGE ALL VOCATIONAL GROUPS	170	8 – 160	38,456	8	36	75	9	49	160	9	30	80

* From Table 3, Survey No. 22, Part 2, Commercial Car Journal, July, 1951, Page 68.
† From Table 1, Survey No. 22, Part 1, Commercial Car Journal, June, 1951, Page 67.

if they should relax this schedule, they might be besieged by an epidemic of flats.

However, either the daily or weekly frequency seems to be preferable to the monthly check, as this latter group shows an average of about 2000 miles less tread life than either of the other two groups and about 1500 miles less than the overall tread life average.

Front-End Checking Experience

THE effect of defective front-end geometry seems to be pretty well understood. However, there appears to be a wide difference in front-end checks. Some fleets check caster, camber and toe-in. Some fleets check caster and camber only; others confine their checks to toe-in. The effect of these practices on tread life is indicated in Tables 3A and 3B.

Unquestionably, the complete front-end checking practice, done at regular mileage intervals, pays the best dividends. The majority of fleet maintenance men seem to agree on this point; as indicated by the fact that 67 per cent follow this practice. Table 3A shows that the average tread life for this group runs about 11,000 miles more than the overall average for all reporting fleets.

Fleets that never check their front-end show consistently poor tread mileage. The tables certainly bear out the fact that it would pay them to make even a partial front-end check.

Table 3B was not previously published, due to space limitations. It shows that only approximately 15 per cent of the fleets make this limited check at about a 9000-mile interval average. It also bears out that it pays to make this check rather than not any, and that, as better attention is given to the front-end, better tread life results.

It Pays to Rotate Tires

IT SEEMS that the industry is not completely agreed on the value and method of rotating tires. However, Table 4 seems to prove that the minority of fleets that employ this practice are well repaid for their trouble. They show a gain of about 11,000 additional miles per tread over fleets that do not rotate, and better than 6000 miles over the overall tread life average.

Some interesting comments on this practice were received from several members of CCJ's Board of Experts. For example, some said that, while they rotated tires on all wheels of trucks, they confined rotation to the rear axles of the various combinations. A few said that they did not employ the standard X-type rotation but merely rotated in a circular fashion. A few others confined

Does Periodic Rotation of Tires Net Better Tread Life?

Table 3B

Results obtained by minority of fleets shows that 11,000 miles are gained by periodic tire rotation over fleets that omit this tire maintenance step

VOCATIONAL GROUPS	Total Number fo Fleets Reporting	REPORTED TREAD LIFE (All Sizes) Range (Last 000 Omitted)	REPORTED TREAD LIFE (All Sizes) Calculated Average†	TIRE LIFE AS AFFECTED BY FRONT-END CHECKING FREQUENCIES: Per Cent of Fleets Checking TOE-IN ONLY	TOE-IN CHECKING MILEAGE Range (Last 000 Omitted)	TOE-IN CHECKING MILEAGE Average	TIRE MILEAGE Low of Group's Tread Life Range (Last 000 Omitted)	TIRE MILEAGE Average Tread Life for This Group (Last 000 Omitted)	TIRE MILEAGE High of Group's Tread Life Range (Last 000 Omitted)
FOR-HIRE CARRIER	20	18 – 160	40,840	10.00	4 – 5	4,500	20	32	40
FOOD DISTRIBUTION	42	8 – 120	35,020	21.43	2 – 10	6,967	8	29	56
GOVERNMENT	28	10 – 95	33,448	17.86	1 – 16	9,400	10	28	75
CONSTRUCTION AND MINING	2	15 – 45	28,725						
INDUSTRIAL	6	20 – 70	47,300	33.33	5 – 30	17,500	20	31	45
PETROLEUM	7	20 – 85	48,064	14.29	3	3,000	40	40	40
PUBLIC UTILITY	30	9 – 135	32,663	10 00	5 – 10	6,667	15	22	30
RETAIL DELIVERY	4	16 – 80	36,835	50.00	5 – 20	12,500	30	48	80
TRUCK RENTAL	17	9 – 90	34,582						
BUS FLEETS	14	15 – 93	47,028	14.28	6 – 3	1,800	35	51	70
TOTALS AND AVERAGE ALL VOCATIONAL GROUPS	**170**	**8 – 160**	**38,456**	**15.21**	**6 – 30**	**8,765**	**8**	**32**	**80**

† From Table 1, Survey No. 22, Part 1, Commercial Car Journal, June, 1951, Page 67.

Does it Pay to Confine Front-End Checks Only to Toe-In?

Table 4

Fleets that check toe-in only net greater tread life than fleets that make no front-end checks, but less than fleets making more thorough checks

VOCATIONAL GROUPS	Total Number of Fleets Reporting	REPORTED TREAD LIFE (All Sizes) Range (Last 000 Omitted)	REPORTED TREAD LIFE (All Sizes) Calculated Average†	TIRE LIFE AS AFFECTED BY TIRE ROTATION PRACTICES*: ROTATE TIRES (48.04%) Low of Group's Tread Life Range (Last 000 Omitted)	ROTATE TIRES (48.04%) Average Tread Life for This Group (Last 000 Omitted)	ROTATE TIRES (48.04%) High of Group's Tread Life Range (Last 000 Omitted)	DO NOT ROTATE (51.96%) Low of Group's Tread Life Range (Last 000 Omitted)	DO NOT ROTATE (51.96%) Average Tread Life for This Group (Last 000 Omitted)	DO NOT ROTATE (51.96%) High of Group's Tread Life Range (Last 000 Omitted)
FOR-HIRE CARRIER	20	18 – 160	40,840	20	45	160	18	37	75
FOOD DISTRIBUTION	42	8 – 120	35,020	26	41	120	8	29	40
GOVERNMENT	28	10 – 95	33,448	12	40	95	10	27	75
CONSTRUCTION AND MINING	2	15 – 45	28,725	25	27	40	15	31	45
INDUSTRIAL	6	20 – 70	47,300	40	64	70	20	20	20
PETROLEUM	7	20 – 85	48,064	20	51	85	25	45	65
PUBLIC UTILITY	30	9 – 135	32,663	15	39	135	9	26	100
RETAIL DELIVERY	4	16 – 80	36,835	16	39	80	20	34	45
TRUCK RENTAL	17	9 – 90	34,582	9	37	90	10	32	85
BUS FLEETS	14	15 – 93	47,028	15	49	93	17	45	89
TOTALS AND AVERAGE ALL VOCATIONAL GROUPS	**170**	**8 – 160**	**38,456**	**9**	**44**	**160**	**8**	**36**	**100**

* From Table 4, Survey No. 22, Part 2, Commercial Car Journal, July, 1951, Page 68.
† From Table 1, Survey No. 22, Part 1, Commercial Car Journal, June, 1951, Page 67.

rotation only to any axle in the same direction of travel. It seems that these processes should be more thoroughly examined in the future.

Effect of Wheel Balancing

A LESS controversial procedure but seemingly still not thoroughly accepted or generally standardized is wheel balancing —both front and rear wheels. Tables 5 and 6 show that the majority of fleets balance front wheels and derive considerable profit from this procedure. A smaller number also balance rear wheels at a slightly smaller, but none the less appreciable, tread life gain from this extra operation.

It must not be assumed that the off-vehicle wheel balancing refers to dynamic balancing. While some of the large fleets have such equipment, their number is so small that little effect, if any, is indicated in the accompanying tread life figures.

To What Extent Does it Pay to Balance the Rear Wheels?

Table 5

Fleets that do not balance the rear wheels average 32,000-mile tread life. Those that do, gain from 8000 to 12,000 miles per tread for their trouble

VOCATIONAL GROUPS	Total Number of Fleets Reporting	REPORTED TREAD LIFE (All Sizes) Range (Last 000 Omitted)	Calculated Average†	TIRE LIFE AS AFFECTED BY TIRE-WHEEL BALANCING—FRONT WHEELS* ON VEHICLE (45.05%) Low of Group's Tread Life Range (Last 000 Omitted)	Average Tread Life for This Group (Last 000 Omitted)	High of Group's Tread Life Range (Last 000 Omitted)	OFF VEHICLE (31.32%) Low of Group's Tread Life Range (Last 000 Omitted)	Average Tread Life for This Group (Last 000 Omitted)	High of Group's Tread Life Range (Last 000 Omitted)	DO NOT BALANCE (11.54%) Low of Group's Tread Life Range (Last 000 Omitted)	Average Tread Life for This Group (Last 000 Omitted)	High of Group's Tread Life Range (Last 000 Omitted)
FOR-HIRE CARRIER	20	18 – 160	40,840	18	49	160	26	43	70	25	31	70
FOOD DISTRIBUTION	42	8 – 120	35,020	9	46	120	12	33	90	8	26	79
GOVERNMENT	28	10 – 95	33,448	10	36	95	15	36	70	22	28	60
CONSTRUCTION & MINING	2	15 – 45	28,725	15	29	45	.....	.....	.....	.....	.....	.....
INDUSTRIAL	6	20 – 70	47,300	20	49	70	40	46	45	.....	.....	.....
PETROLEUM	7	20 – 85	48,064	25	45	85	20	52	65	.....	.....	.....
PUBLIC UTILITY	30	9 – 135	32,663	9	37	135	15	38	100	14	24	27
RETAIL DELIVERY	4	16 – 80	36,835	9	43	80	21	41	60	16	27	50
TRUCK RENTAL	17	9 – 90	34,582	9	35	90	.....	.....	.....	.....	.....	.....
BUS FLEETS	14	15 – 93	47,028	35	54	93	40	46	58	15	42	73
TOTALS & AVERAGE ALL VOCATIONAL GROUPS	170	8 – 160	38,456	9	46	160	12	42	100	8	27	79

* From Table 1, Survey No. 22, Part 3, Commercial Car Journal, August, 1951.
† From Table 1, Survey No. 22, Part 1, Commercial Car Journal, June, 1951, Page 67.

How Much Tread Life is Gained by Balancing Front Wheels?

Table 6

Fleets that balance front wheels, on or off the vehicle, show a considerable gain in mileage over those that do not. Top gain averages 19,000 miles

VOCATIONAL GROUPS	Total Number of Fleets Reporting	REPORTED TREAD LIFE (All Sizes) Range (Last 000 Omitted)	Calculated Average†	TIRE LIFE AS AFFECTED BY TIRE-WHEEL BALANCING—REAR WHEELS* ON VEHICLE (23.63%) Low of Group's Tread Life Range (Last 000 Omitted)	Average Tread Life for This Group (Last 000 Omitted)	High of Group's Tread Life Range (Last 000 Omitted)	OFF VEHICLE (26.92%) Low of Group's Tread Life Range (Last 000 Omitted)	Average Tread Life for This Group (Last 000 Omitted)	High of Group's Tread Life Range (Last 000 Omitted)	DO NOT BALANCE (21.43%) Low of Group's Tread Life Range (Last 000 Omitted)	Average Tread Life for This Group (Last 000 Omitted)	High of Group's Tread Life Range (Last 000 Omitted)
FOR-HIRE CARRIER	20	18 – 160	40,840	20	47	160	26	43	100	18	33	50
FOOD DISTRIBUTION	42	8 – 120	35,020	11	46	120	12	31	90	8	28	100
GOVERNMENT	28	10 – 95	33,448	18	44	95	10	32	70	12	25	60
CONSTRUCTION & MINING	2	15 – 45	28,725	15	29	45	.....	.....	.....	.....	.....	.....
INDUSTRIAL	6	20 – 70	47,300	30	49	70	40	54	65	20	39	45
PETROLEUM	7	20 – 85	48,064	25	51	85	.....	.....	.....	20	45	65
PUBLIC UTILITY	30	9 – 135	32,663	10	38	135	15	33	100	9	29	40
RETAIL DELIVERY	4	16 – 80	36,835	30	43	80	20	43	60	16	25	50
TRUCK RENTAL	17	9 – 90	34,582	10	34	55	15	30	40	9	39	90
BUS FLEETS	14	15 – 93	47,028	35	45	68	40	49	58	15	47	93
TOTALS & AVERAGE ALL VOCATIONAL GROUPS	170	8 – 160	38,456	10	44	160	10	40	100	8	32	100

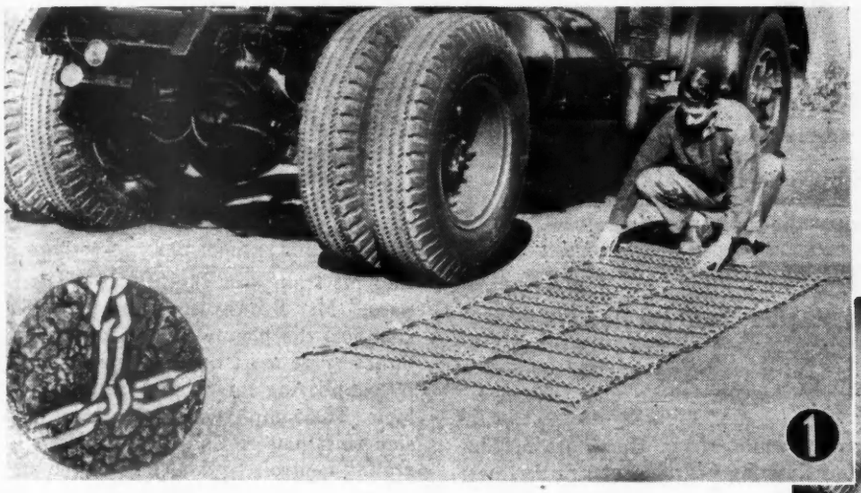
* From Table 1, Survey No. 22, Part 3, Commercial Car Journal, August, 1951.
† From Table 1, Survey No. 22, Part 1, Commercial Car Journal, June, 1951, Page 67.

Composition of Vocational Groups as Used in the Accompanying Tables

FOR-HIRE CARRIERS—Motor Freight Carriers in Local and Over-the-Road Service.
FOOD DISTRIBUTION—Bakery, Dairy, and Other Food Products fleets.
GOVERNMENT—State, County, Municipal, and Federal fleets.
CONSTRUCTION AND MINING—Building, Mine, Quarry, and Gravel fleets.
INDUSTRIAL—Fleets operated by manufacturers.
PETROLEUM—Production and Distribution fleets.
PUBLIC UTILITY—Gas, Power, Water, and Telephone fleets.
RETAIL DELIVERY—(Other than Food Products), Dry Cleaning, Laundry, Newspaper, Coal, Ice, Department Store, Beverage fleets.
TRUCK RENTAL—Agencies leasing motor trucks.
TRUCK AND BUS FLEETS, MIXED—Passenger carriers operating own truck fleets.

CCJ MECHANIC RETRAINING GUIDE

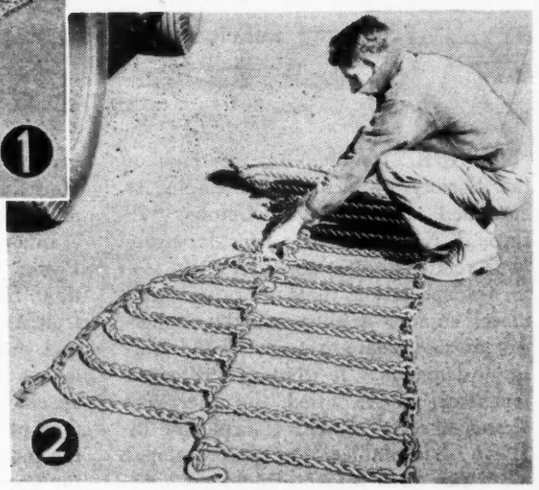
No. 5. How to Put on Truck Chains

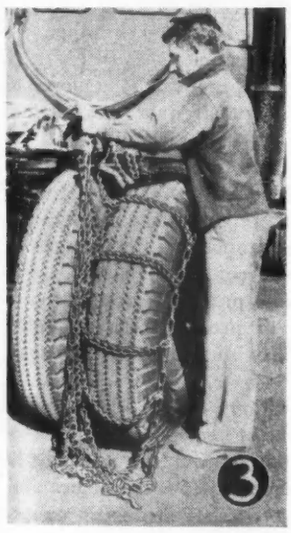


1. Spread chains on ground, remove tangles, keep hooks up, side chain fasteners to the rear.

2. Pull inner side chain toward center side chain. Grasp inner side chain with both hands.

Courtesy American Chain Div. American Chain & Cable Co.

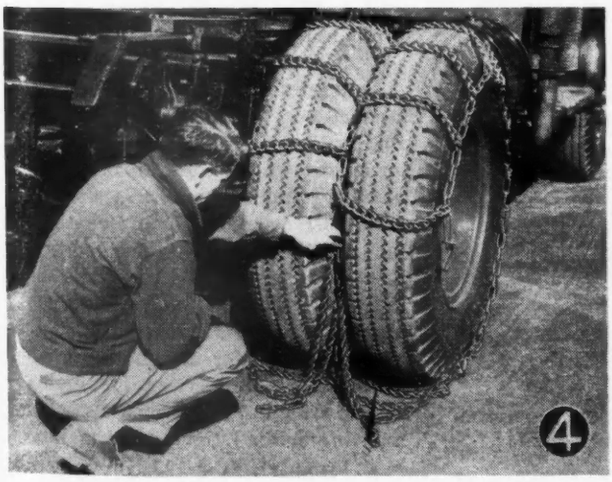




3. Holding inner and center side chains, swing chain onto outer tire. Drop center side chain between tires. Drape inner side chain over inner tire. Center chains on tire and tuck front chains under tire.

4. Move vehicle forward until side chain fasteners are axle high. Hold loose end of side chain close to fasteners to determine correct link in which fasteners should be placed.

5. Fasten center side in pre-determined link *first*. Fasten inner side chain as tightly as possible by hand. Fasten outer side chain as tight as possible.



Three SAE Sections Stage National Meeting in Chicago

Engineers describe new engines, outline steps to more efficient transportation, discuss new fuels and oils at Chicago meeting of Transportation, Fuels and Lubricants, Diesel Engine SAE sections

THREE NATIONAL meetings of the Society of Automotive Engineers convened in Chicago, October 29 through November 1, to consider problems related to commercial vehicle motor transportation, fuels, lubricants, and diesel engines arising from war emergencies and from growing civil and military demands. A battery of eight technical papers filled the three-day Transportation session chairmaned by F. B. Lautzenhizer, of International Harvester Co. Subjects included automatic and hydraulic transmissions, gas turbine power plants for trucks, impact of legal developments on highway transportation (See November CCJ, page 10) and lubrication problems. Sessions were combined with the Fuels and Lubricants group and the Diesel Engine section for a joint dinner on Tuesday, with C. F. Kettering, of General Motors Corp., speaking on the subject of "Future Energy Supply." SAE past president A. T. Colwell, of Thompson Products, Inc., was toastmaster at the dinner.

The Diesel Engine Meeting heard papers on engine design and construction, a report on U. S. Navy diesel engine starting tests, use of diesels in subzero areas, fuel injection equipment. The Fuels & Lubricants Meeting featured papers on the application of radioactive materials to petroleum and automotive research, development of the Humphreys constant compression engine, filtration problems with high-detergency lubricants, and the effects of fuel structure, tetraethyl lead and engine deposits on precombustion. M. R. Bennett, of International Harvester Co. served as general chairman of the diesel group, while M. L. Hamilton, of Sinclair Refining Co., chairmaned the fuels and lubricants session.

In a paper entitled "Effect of Weight/Power Ratio on Highway Transportation," N. R. Brownyer, of Timken-Detroit Axle Co., called for larger engines and more efficient power plants as a means of improving highway tractor specifications and performance. "Every form of transportation," he said, "except the motor truck industry, has improved the operators' chances of safe operation by reducing driver fatigue. The ever increasing number of cars, buses and trucks on the road make it imperative that we take a more serious view of lightening the driver's task of getting the train over the road."

"The highway tractor's power plant and the means of getting the power to the wheels have not changed enough in the last several years to indicate satisfactory progress," he suggested. "We have some new powerful engines, but generally speaking, they have been used to pull greater loads rather than to improve standards of performance.

"The factors that are necessary to get high output, low weight and extreme compactness have been known and used by engine men for many years, but have not necessarily all been incorporated in the same engine. Some of these factors are:

1. Multi-cylinders
2. V-type engines
3. Valve in head
4. High compression
5. Light weight piston and rod assembly
6. High rpm

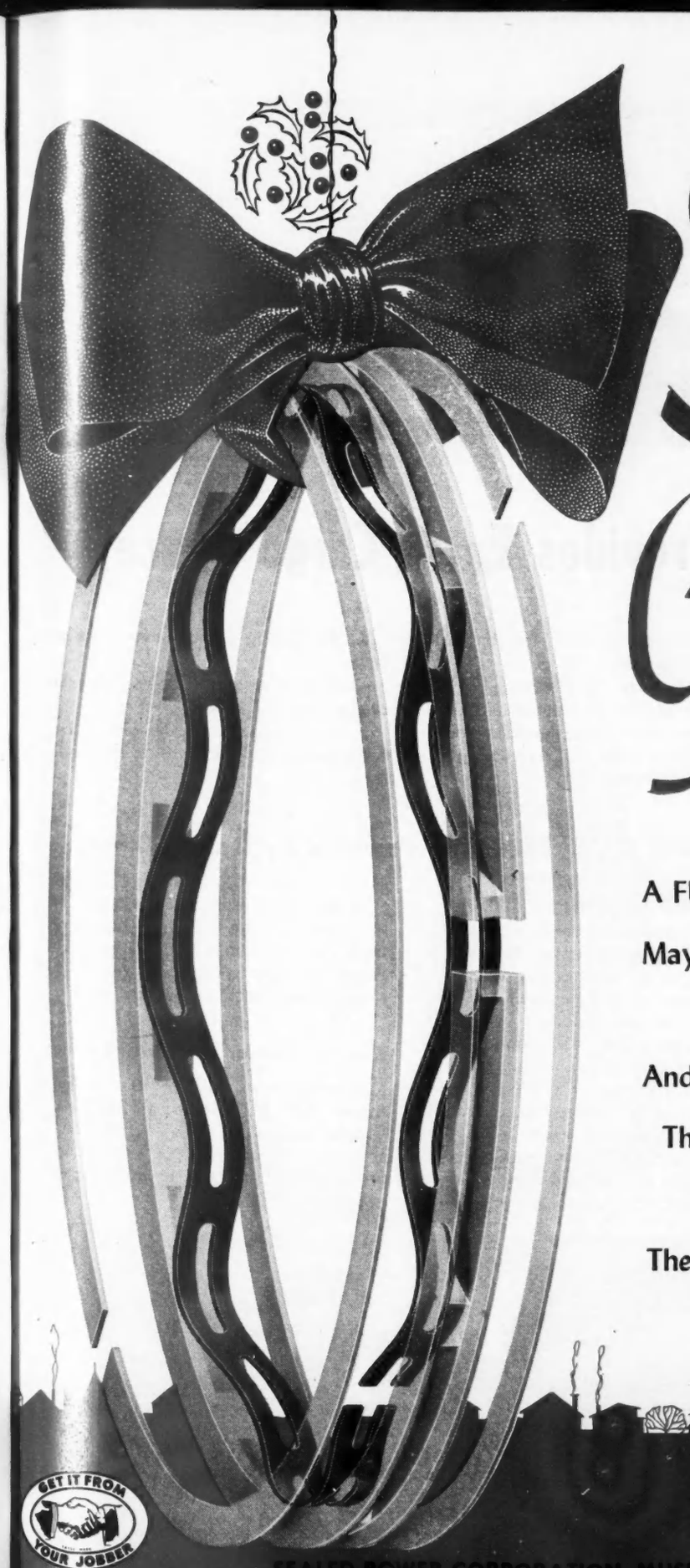
"An increase in horsepower will allow the driver to more safely pass other vehicles on the highway and will also reduce the obstruction of traffic by getting his train over the hill at a faster pace," Mr. Brownyer continued. "To complete the picture of safe operation, however, we must reduce driver fatigue by simplifying the operation of the vehicle. The simplest available transmission shift pattern and the simplest operating controls at this stage of the art of transmission development means reverting to several fundamental specifications that depend on each other for satisfactory operation.

1. Maximum practical horsepower to reduce necessity of frequent gear changing.
2. Simple five-speed transmission.
3. Two-speed axle to provide at moderate cost in weight, space and dollars a two-range proposition for congested and open road conditions.
4. Maximum practical spread in two-speed axle to provide both adequate starting ability and desired top road speed.

"The question arises whether the highway tractor equipped with adequate horsepower would be more costly from the standpoint of maintenance and original cost than the present underpowered vehicles," the speaker suggested. "The answer is obvious. Many present highway vehicles are working at peak horsepower most of the time. This does not necessarily make for low maintenance cost and it is questionable if fuel economy goes hand in hand with an overworked engine. In addition, an auxiliary transmission or a two-speed axle must be used as a crutch to supplement the generally accepted transmission which does not provide both the short steps to keep the engine at highest possible horspower and sufficient low gear for starting on grades.

"Our design objective for highway vehicles should be to promote safety by reducing driver fatigue while maintain-

[TURN TO PAGE 128, PLEASE]



Season's Greetings

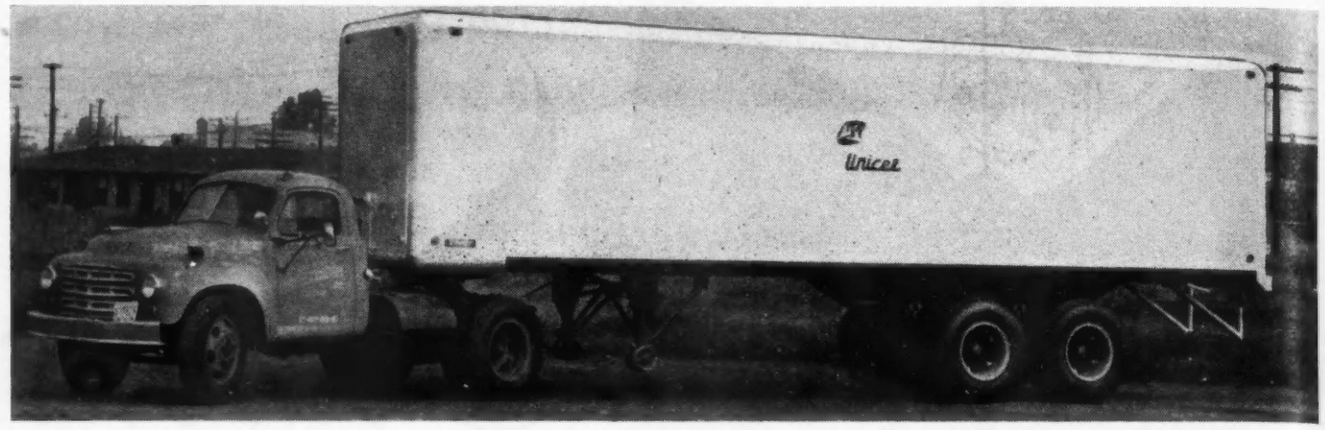
A FULL FLOW of holiday spirit!
A FULL FLOW of brightness and cheer!
May FULL FLOW, wherever you hear it,
Help RING in a bountiful year!
And, speaking of RINGS, there's a nifty,
That dealers from coast to coast sing—
It's called the Sealed Power MD-50;
The ring with the FULL-FLOW SPRING!

GET IT FROM YOUR JOBBER

SEALED POWER CORPORATION, MUSKEGON, MICHIGAN

Sealed Power Piston Rings

BEST IN NEW TRUCKS BEST IN OLD TRUCKS



Plywood Trailer Provides Extra Cargo Space

A NEW refrigerator truck-trailer made of cellular plastic-laminated plywood has made its appearance on the commercial fleet scene. Called the Unicel, the new vehicle, first non-metal truck-trailer to be built with the strength of steel, was designed and built by the Pressed Steel Car Co., Inc., of Chicago, to specifications furnished by Brown Equipment & Mfg. Co.

Another feature of this trailer is the special built-in shock-cushioning tandem assembly which is said to reduce cargo damage appreciably. A development of General Tire & Rubber Co., the new suspension system uses an air bag with automatically adjusting air pressures to suspend the load in place of conventional leaf springs. Improved roadability, braking and tire life are said to be enjoyed with this new design.

The trailer is constructed of cellular laminates, a relatively new material made by laminating strong plywoods grain-against-grain with specially formulated super-strength plastics. The laminate sections are then subjected to high-frequency heat applied under tremendous electronic pressures molding the sections to form a single unit-cellular structure (from which the finished structure derives its name, Unicel). The only steel used in the construction of the trailer is in its heavy-duty tandem and kingpin wear-plate assembly and the door-frames.

The "reefer"-trailer provides flexibility of trailer operation, enabling operators to ship an unrefrigerated load in one direction and a refrigerated load of meat, dairy products, frozen foods or fruits and vegetables in the other direction on the return trip, without sacrificing costly space and weight that would cut down on payloads.

New features claimed for the 32-ft reefer-trailer are:

1. Rigid body construction makes for easier pulling and maneuverability.
2. Extra load space permits transport of more cargo while retaining all standard clearances.
3. Non-rusting and non-corrosive body.
4. Stress-skin construction absorbs road shock and strains.
5. Well insulated body keeps refrigerated loads colder at less overall cost.

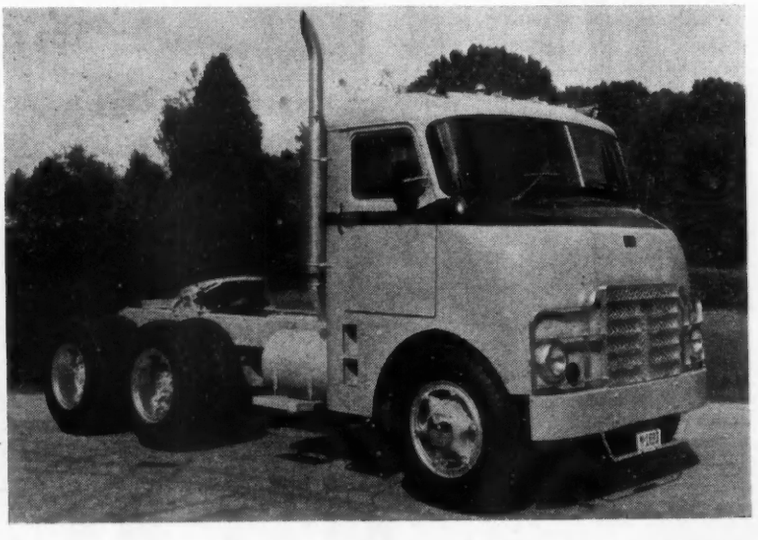
BROWN COE TANDEM Powered by Gas or Diesel

BROWN EQUIPMENT AND MFG. CO. has introduced a new cab-over-engine Tandem Tractor, Model LS, featuring driver comfort improved visibility, ease of maintenance and accessibility of controls. This model has a wheel base of 144 in. (optional maximum 166 in.) and a turning radius of 25 ft. Engine, transmission and radiator can be removed as a unit by the removal of only eight bolts. For minor repairs and adjustments, all components are readily accessible while in the tractor. (See photo below.)

Either gasoline or diesel engines of several makes are available. Standard tires will be 10.00 x 20, 12 ply. This cab-over-engine tandem axle tractor is also available with single axle drive.

Tandem Trailer Has Drop Frame

Brown's new 2100-cu ft tandem trailer has drop-frame construction. Weight was cut by use of 6-in. tandem channels; aluminum front understructure; and in landing gear and bumper beams.



Here are 9 good reasons why MARQUETTE

REGISTERED U.S. PAT. OFFICE

is your best charger buy!

We're proud of the high quality, nationally known, component parts used in Marquette chargers. That's why we list them prominently here for you. Combined, they make Marquette Hi-Rate Chargers your best buy—for accuracy, dependability and long, trouble-free service. Get a demonstration and further proof now. Ask your jobber.

Model 205
80-60 Amperes

Model 204-206
Wall Charger

Model 202
100 Amperes

Model 203-203W
100 Amperes

Model 201-201W
80 Amperes

MARQUETTE

REGISTERED U.S. PAT. OFFICE

MANUFACTURING CO., INC.

307 EAST HENNEPIN AVENUE • MINNEAPOLIS 14, MINNESOTA

- OHMITE — CHARGING RATE CONTROL
- MARQUETTE — FULLY AUTOMATIC OPERATION
- MARION — CHARGING RATE METER
- Westinghouse — SELENIUM RECTIFIER
- MARQUETTE — WEATHERPROOF DESIGN
- KLIXON — AUTOMATIC CIRCUIT BREAKER
- GENERAL ELECTRIC — SEALED-IN-OIL FAN MOTOR
- MARQUETTE — DESIGN, QUALITY, PERFORMANCE
- CRAMER — ELECTRIC TIME SWITCH

WATCH THE SATURDAY EVENING POST FOR MARQUETTE IN '52!

1951 New Truck Registrations by Makes by States*

STATE		Auto-car	Brock-way	Chev-rolet	Dia-mond T	Divco	Dodge	Fed-eral	Ford	FWD	GMC	Inter-na-tional	Ken-worth	Mack	Peter-bilt	Reo	Ster-ling	Stude-baker	White	Willys	All Others	Total
Alabama	Sept.			556		1	120		386		152	94		11		3		51	5	20		1,401
	9 Mos.	8		6680	12	19	1482	7	4421	1	1623	999		124		28		514	158	257	18	16,351
Arizona	Sept.			200	1	2	58		101		75	52	4	1	1	2	2	27	4	14		544
	9 Mos.	7	2	1830	9	11	600	4	1247		621	427	12	14	5	21	2	191	56	151	25	5,235
Arkansas	Sept.			1139	1		265		807	1	462	323		17		6		116	20	27	3	3,187
	9 Mos.	1		6185	10		1360		4167	1	2168	1157		30		30		569	76	252	10	16,016
California	Sept.	18		1269	42	17	688	4	1228	5	648	535	23	27	18	7	9	193	39	110	21	4,901
	9 Mos.	175	8	15832	333	293	6709	27	11616	75	6090	3603	196	349	194	110	91	1699	414	954	114	48,822
Colorado	Sept.			375	1	2	76		258		113	108	1	2		2		38	7	69	1	1,053
	9 Mos.	22		3692	20	34	831	8	2572	8	1084	869	16	45		30		310	35	389	26	9,991
Connecticut	Sept.	1	5	179	9		64	2	124		49	63		6		6		23	9	33	4	577
	9 Mos.	46	52	1977	76	75	753	28	1353	1	482	593		245		50	8	182	99	191	19	8,230
Delaware	Sept.	1		71			27		46		16	14		1		1		4		4	1	166
	9 Mos.	5	9	739	12	5	201		632	1	148	216		12		11		62	16	28	7	2,086
District of Col.	Sept.			81			20		62		21	27				2		1	1	3	1	219
	9 Mos.	7	3	832	23	33	238	5	452		289	231		15		17		18	30	63	6	2,262
Florida	Sept.	1		611	7	8	295		546		155	191		19		9		134	17	114	11	2,118
	9 Mos.	8	2	5801	113	53	2271	4	4104	2	1375	1075		256		91		853	155	792	98	17,053
Georgia	Sept.	1		865			260		732		262	209		21		1		112	26	59	1	2,549
	9 Mos.	2	7	9247	24	15	2230	6	6869	2	2393	1657	1	198		48	2	1018	194	351	39	24,303
Idaho	Sept.			240	6		102		201		138	98		3		1		45	2	60		896
	9 Mos.			1842	43	5	566	12	1308	1	983	679	39	49		16	1	255	37	431	7	6,274
Illinois	Sept.	5	1	1299	38	18	389	2	810		313	397		11		7		96	29	49	21	3,465
	9 Mos.	45	5	12863	517	184	4484	24	8057	5	3188	4198	1	239		123	23	904	512	571	107	36,026
Indiana	Sept.			924	7	6	263	1	759		178	292		10		4		149	37	33	8	2,671
	9 Mos.	4	1	7853	84	66	2491	12	5571	5	1507	2880		138		94		1074	420	404	43	22,747
Iowa	Sept.			581	12	2	145		518		127	340		4		1		63	13	27	9	1,842
	9 Mos.	1		6324	88	30	1502	2	4868	1	1261	2474		50		24		516	122	228	31	17,521
Kansas	Sept.			627	4	5	158		520	1	184	198		2		1		60	15	47		1,822
	9 Mos.			5747	38	27	1197	6	3742	2	1445	1604		11		17		409	106	316	11	14,678
Kentucky	Sept.			652	6	7	150	1	503		209	255		2		1		69	7	73		1,935
	9 Mos.	6		5527	51	20	1252	6	3808	2	1440	1322		48		27		477	74	571	20	14,651
Louisiana	Sept.			695	5		135		700		240	157		3				91	7	39	2	2,074
	9 Mos.	9		5671	81	12	1048		4494	5	1690	1052		32		5		602	60	285	11	15,057
Maine	Sept.		2	162	2		37		123		62	33		10				23	2	27		483
	9 Mos.	7	12	1450	5	4	339	8	1058		444	351		97				160	46	145	9	4,138
Maryland	Sept.	1	8	314		3	130	6	260		71	111		18		4	1	37	18	22	1	1,005
	9 Mos.	23	56	2890	14	61	1013	49	2049	1	774	833		173		46	6	188	122	148	7	8,451
Massachusetts	Sept.	7	1	365	4	8	144	4	299		106	139		16		13	2	30	19	25	4	1,186
	9 Mos.	165	82	3508	98	133	1416	34	2869	6	955	1008		265		116	37	314	280	220	35	11,541
Michigan	Sept.	6		1188	7	37	458	4	1290		349	321		20		23		90	38	46	3	3,878
	9 Mos.	49	1	11782	90	204	3524	79	10192		2802	2070	1	178		222		615	266	378	42	32,295
Minnesota	Sept.			573	2	5	153		492		134	279	3	8		1		73	14	37	8	1,772
	9 Mos.	5		5148	52	35	1620		4082	17	1292	2063	16	59		30	1	630	103	289	56	15,498
Mississippi	Sept.			641	1		113		465	1	272	141				1		64	3	21		1,723
	9 Mos.			6035	5		1160	7	3932	1	2198	1089		47		3		481	59	356	7	15,380
Missouri	Sept.			987	12	3	244		730		342	230		38		2		88	43	30	5	2,754
	9 Mos.	10		10176	57	94	2637	2	6419		2989	2030		82		53	2	706	427	337	28	26,049
Montana	Sept.			250	3		46		248		105	139		9		4		33	1	53		891
	9 Mos.			2208	37	5	461	4	1525	4	732	812	22	35	5	36		254	41	474	3	6,658
Nebraska	Sept.			416	12		68		371		134	210	2	1		3		62	12	67	2	1,380
	9 Mos.	5	1	4764	119	14	812		3215	5	1385	1601	27	47		28		443	105	425	18	13,014
Nevada	Sept.			49			16		31		40	10						7		7		160
	9 Mos.			458	4		160		277	1	286	133				1		42	3	55		1,420
New Hampshire	Sept.			69	1	3	21		73		20	25		10				8	1	13	2	245
	9 Mos.	10	11	849	4	15	266	3	652	2	251	227		79		15		92	18	105	10	2,609
New Jersey	Sept.	7	16	570	11	11	226	4	451	3	136	146		30		10	1	41	47	48	11	1,769
	9 Mos.	168	310	6542	122	242	2051	68	4490	11	1676	1516		514		93	19	409	409	500	59	19,199
New Mexico	Sept.	1		250	1		38		129		128	48		2		12		36	2	14	3	664
	9 Mos.	2		1856	4	1	352		1031	2	655	301	2	28	1	17		198	11	139	10	4,810
New York	Sept.	13	66	1189	28	27	513	5	773	2	339	372		72		40	2	91	84	83	11	3,710
	9 Mos.	261	626	12242	439	345	5096	108	7766	34	3201	3737		1189		453	27	822	988	947	224	38,507
North Carolina	Sept.	2		1060		9	282		808		269	246		17		2	1	133	21	50	47	2,947
	9 Mos.	65	4	8291	26	67	1824	8	5762	1	2363	1622		341		34	3	804	239	396	256	22,106
North Dakota	Sept.			170	1	3	42		167		48	147						28		27		633
	9 Mos.			1760	8	5	504	7	1400		419	941		1		3		213	4	149	3	5,437
Ohio	Sept.	11		1047	13	26	411	9	936	1	261	418		30		9		133	59	94	2	3,480
	9 Mos.	100	10	11934	187	273	3992	54	9057	14	2834	3565		407		212		1059	982	895	95	35,670
Oklahoma	Sept.			714		1	192		625	4	214	208		5		4		85	16	27	4	2,099
	9 Mos.			6401	3	44	1457	1	4340	30	1539	1382	8	25		26		440	181	248	12	16,117
Oregon	Sept.	6		333	3	4	163	1	263		172	153	5	11	1	3	1	46	20	89	17	1,291
	9 Mos.	14		3472	70	25	1407	16	2199	1	1368	1240	63	178	16	23	9	332	137	687	56	11,311
Pennsylvania	Sept.	16	30	1355	18	22	556	3	972	6	340	451		60		16	1	117	60	92	27	4,142
	9 Mos.	201	477	13007	235	145	5542	91	9234	10	3369	4240		904		200	23	1064	834	905	154	40,635
Rhode Island	Sept.	2		63	1		31		66		21	19		2		1		10	1	1		218
	9 Mos.	45	5	694	13	23	246		656		164	224		46		2	2	70	50	42	6	2,288
South Carolina	Sept.			645			120		321		137	104		11		1		46	5	6	1	1,397
	9 Mos.	11	1	4735	12	9	1022		2590	2	1088	677		117		5		351	92	128	18	10,858
South Dakota	Sept.			124	9		38	1	108		48	87		1				16	2	23		457
	9 Mos.			1588	40	2	521	2	1234		500	1030	3	7		8		220	16	231	4	5,406
Tennessee	Sept.			723	3	2	189		588		241	200		12		1		58	28	12	1	2,058
	9 Mos.		3	6867	20	28	1799	16	4801		1956	1335		129		10		544	157	246	26	17,537
Texas	Sept.	10		2518	20	9	612		1579		921	553	2	27		22		223	56	146	9	6,707
	9 Mos.	50		26179	136	98	6085	9	17334	2	8534	4723	8	294		141		2205	647	1231	91	67,767
Utah	Sept.			213	1		30		146		70	63	3	1		3		9	6	24	1	570
	9 Mos.			1623	21	24	322	11	1013		616	436	23	26	7	17		112	40	140	14	4,445
Vermont	Sept.			68	1		17		41		29	26		1				7		18		208
	9 Mos.	1	7	672	6	2	155	2	417	2	209	231		22		12		54	6	147	3	1,948
Virginia	Sept.	6		684	3	4	185	1	441	2	181	198		21		3		73	20	43	2	1,867
	9 Mos.	46	36	6241	31	77	1588	18	4198	30	1412	1485		260		32		528	194	375	30	16,581
Washington	Sept.			353	5	2	155		255		135	168	8	8		3		41	9	48	6	1,196
	9 Mos.	1		3410	84	43	1519	2	2260	5	1322	1211	71	106	2	39	6	312	147	455	66	11,061
West Virginia	Sept.			232			87	2	168		76	63		2		1		27	2	38	1	699
	9 Mos.	3	27	2917	13	25	1022	23	2145	9	878	665		82		24		230	78	538	15	8,694
Wisconsin	Sept.	1		515	9	4	117		323	1	111	182		6		2		38	17	40	3	1,339
	9 Mos.	13		5679	71	69	1615	21	3969	50	1370	2060		79		74	5	474	192	326	50	16,117
Wyoming	Sept.			138	2		26		119		58	63		1				12	1	36		458
	9 Mos.			1268	19		297		836		447	398	8	15		4		107	20	318	2	3,739
Total	September, 1951	116	129	28342	312	251	8653	50	21954	27	8912	8905	51	590	20	238	20	3057	845	2087	254	84,814
Total	September, 1950	149	195	40134	535	438	10821	93	31045	17	9249	11369	82	775		440	34	4253	1243	2644	268	113,784
Total	9 Months, 1951	1601	1758	275099	3577	2994	81021	794	192083	352	77711	70250	517	7687	230	2721	267	24124	9458	18211	2001	772,456
Total	9 Months, 1950	1523	1599	318878	4253	3034	69309	1026	238710	225	72088	81197	457	6826		2635	261	36595	8420	17884	2865	867,785

* Data from R. L. Polk & Co.

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PORMAX *practically indestructible plastic separators.* Extremely resistant to heat and acid . . . flexible and tough. Low internal resistance increases cold-weather starting ability.

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"SILVIUM" and "ULTRA START" *T. M. Reg. applied for.*

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FREE PUBLICATIONS

FOR YOUR CONVENIENCE USE THIS POSTCARD

A selected list of the latest literature — catalogs, pamphlets, charts — chosen to help fleetmen improve operation and maintenance.

L120. Gasketing Book

A new 16-page gasketing book, "How to Gasket Right to Win Praise Winning Jobs," containing new ideas that will save time and do-overs for mechanics, gives step-by-step procedures to follow when re-gasketing to insure best results and protection against early gasket failure.

The new Fel-Pro Booklet is fully illustrated and covers such subjects as: head removal and cleaning, preparing bolts and studs, placing gaskets on cylinder blocks, replacing and tightenheads and hints that save time and money. Some of the procedures are elementary, but often overlooked by busy mechanics. The book provides a handy check list that helps remind the mechanic of the importance of each procedure.

Write L120 on the postcard for your copy.

L121. Fire Fighting Data

What one should know about modern fire-fighting devices and the different fire extinguishing agents used in them, is contained in a new 32-page illustrated booklet titled "Correct Fire Protection."

Since it is universally known that all fires are not alike, it is of essential importance that operators of fire extinguishing equipment know the correct fire extinguisher for use on the kind of fire to be extinguished.

This new educational booklet not only makes this important information clear, but it also illustrates and describes the various sizes of units available for use with different kinds of fire extinguishing agents.

Single copies are available free of charge. Write L121 on the postcard.

L122. Safety Posters

A series of safety poster designed to provide timely messages to drivers of commercial vehicles has been made available to the fleet field by Dayton Rubber Co. These 16 x 22-in. posters can be used on bulletin boards, in drivers' rooms or at loading docks, where drivers can smile at the droll humor of these safety tips, yet remember their important messages. Such slogans as "Don't be a Dock Walloper," and "Don't Do Your Sleeping on the Roadbed . . . You might Wake Up and Find it Permanent," with appropriate cartoons, will go a long way toward improving your drivers' safety records.

Write L122 on the free postcard for copies of these posters.

L123. Engine Maintenance

"Practical Pointers on Engine Maintenance" is the title of this 32-page booklet issued by Ethyl Corp. in the interest of aiding fleetmen in improving vehicle performance through better PM practices.

Stressing the importance of fuel in satisfactory engine performance, the booklet points out common troubles found in fuel pumps. tanks and lines, carburetors, air cleaners, and outlines remedial steps to be taken in event of trouble. Another section on valves outlines causes of sticking and burning of both exhaust and intake valves, shows adjusting procedures for valve rotators and provides practical tips on valve installation and maintenance.

The section on ignition points out service requirements in timing, point adjustment and in testing distributors. A rather comprehensive story on the importance of spark plugs to good engine performance is included. Crankcase ventilation and cooling system maintenance procedures concludes the text.

This handy, illustrated booklet will supplement the vehicle manual and will provide valuable tips for your mechanics. Write L123 on the postcard for your copy.

L124. Service Hints

Developed primarily to help the mechanic to attain better satisfaction from his Sunnen honing machine, this 32-page, pocket-sized booklet will be found useful in related shop work. The booklet stresses Do's and Don'ts to be observed in the operation of the hone, emphasizing the importance of good maintainence, cleanlines and care in setting up the work. Other hints on the correct use of mandrels, stones, guide shoes, truing sleeves, etc., and other instruction guides are provided for pin fitting gage, the bearing sizer, rod aligner, cylinder hone and other types of engine rebuilding equipment. Three charts showing proper stone selection, recommended piston pin clearances, and cylinder grinder stone listings complete the booklet. Write L124 on the postcard for a free copy.

L125. Brake Study

"How to Get More Stops Between Relines" is the title of a new book which describes the wear and performance characteristics of "Silvertip" —a new brake lining engineered specifically for heavy duty "Multi-Stop" applications in trucks, passenger cars and taxi-cabs.

For a free copy write L125 on the postcard.

NEW PRODUCTS

FOR YOUR CONVENIENCE USE THIS POSTCARD

Illustrating and reviewing newest developments in parts, accessories, shop equipment and tools. For more information use the attached postcard.

P90. Cargo Heater

A charcoal-burning space heater made by Knowles-Fisher Corp. Gowanda, N. Y., is designed for use with produce and freezable liquids. The outer container is ventilated top and bottom. An inner compartment is divided into sections which surround the charcoal. The bottom perforated partition is fixed; the top partition is loose, and follows the fuel as it is consumed. A lid to the outer case clamps shut as an additional safety measure.

P91. Remote Control

A manual remote control arrangement is being made by Teleflex Inc., Philadelphia, Pa. which has a number of applications for truck or bus. It consists of a single entry control box, conduit, cable and a telescopic unit. A twist on the control-box lever actuates the cable which in turn actuates the control arm of the device on which it is being used.

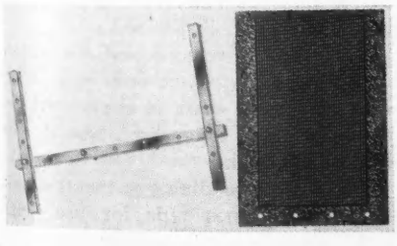
It may be applied to a throttle, fuel selector valve, hydraulic valve, cargo heater, parking brake valve, fire extinguisher, shut-off valve, auxiliary power unit, transmission shift, torque converter, power take-off, and any accessory that requires actuation by a cable.

P92. Caulk Guns

A new line of caulking guns designed for use with new "Rub-Bub" chromated caulk is announced by Samuel Moore Chemical Co., Inc., Mantua, Ohio. The new applicators are made of steel with a gray baked-enamel finish. Available in two models, for use with bulk caulk or caulk cartridges, they feature contoured handles, ratchet drive and instant pressure release. The manufacturer states that their small size permits access to confined spaces.

P93. Splash Guards

A new splash guard has just been introduced by the Doan Mfg. Corp., Cleveland, Ohio. It is made of molded rubber combined with woven fabric. A double layer of fabric is added to the



top mounting edge to provide a grip for the fasteners. The flaps are from 30 in. to 40 in. long, each 24 in. wide.

P94. Accelerometer

The use of the pendulum theory has been applied to this performance meter made by Tapley Products, New York. The manufacturer states that this compensated standard accelerometer provides a practical method of measuring true vehicle performance ability. It measures road gradients, resistance, traction, hill climbing, pulling power and acceleration. It may also be used for checking performance after overhauling.

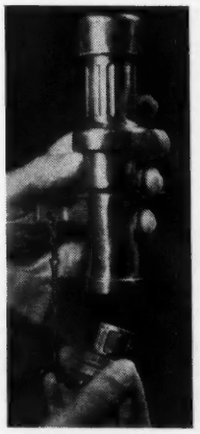
P95. Signal Lights

Auto Lamp Mfg. Co. of Chicago announces the marketing of a new line of directional signal lights designed for use on light panel trucks. The new "Pathfinder Selecto-Set" signal lights have been made available in three types, enabling users to make sets to fit their own individual needs. These types are: flush mounting, which ataches directly to any flat body surface; fender type mounting, for installation in a vertical position on fenders or in a horizontal position on the side of the truck panel or cab, and stud mounting, which is attached by a bolt to any vertical body surface. All are available with either clear or red lens.

P96. Front Axle

The United Manufacturing Co. has announced the design and production of a new front axle assembly; featuring a turning radius up to 45 deg., depending upon track width and spring location. These assemblies have capacities ranging from 10,000 lb to 12,000 lb, and are recommended for air compressors, heavy-duty generators, pumps, tar kettles, concrete mixers, military field units and other mobile equipment.

P97. Starting Aid



A puncturing tool, for use with the priming system for Chevron starting fluid capsules, is being produced by the California Oil Co., Barber, N. J. Upper and lower chambers of the tool are protected by overlapping metal skirts. Another new feature announced is a plug and screen trap at the end of the lower chamber which may be removed for

(TURN TO NEXT PAGE, PLEASE)

New Product Descriptions

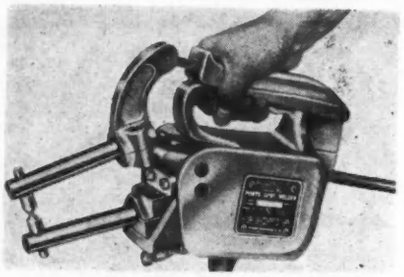
Continued from Page 79

cleaning. The plug is attached also to the tool and its mounting by a chain so it will not be lost if shaken loose by jars or vibrations.

The new tools are available as a cold weather starting aid for both diesel and gasoline powered equipment.

P98. Spot Welder

A portable spot-welder weighing 24½ lb including arms, electrodes and



cable has been developed by Marquette Mfg. Co., Minneapolis, Minn.

The "Porto-Spot" welder, model 275 features a semi-automatic timing control and a high leverage electrode system. The welder employs the "squeeze and heat" process. High amperage current puddles the metal and under heavy pressure the two metals are welded together. As the handle is squeezed shut, the automatic switch applies the current.

Specifications of the welder include: 220-240 v; 50160 cycle; works on mild and stainless steel up to ⅛ in., combined thickness; two 45-deg and two 90-deg electrodes; and a 10-ft power cable less plug.

P99. Paint Heater

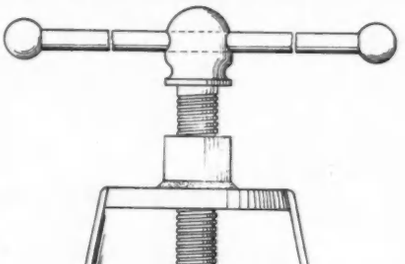
A new hot spray lacquer and synthetic heater developed by Thermalcup, Inc., Cleveland, Ohio, features 6 qt capacity for spraying a complete car by either pressure or siphon methods.

Designed by pioneer engineers of hot spray equipment now used by automotive manufacturers and other leading industries, the new Thermalflo Six Quart 2-Way Car Refinisher assures control of temperature and viscosity of hot lacquer and synthetic by the automatic thermostat. Outside pilot light signals operator when batch is in ideal spraying heat range. The neck of the heater provides an additional 2 qt capacity over and above the 6 qt capacity. Operator may spray direct from the heater with no delays for refilling cups by using pressure head attachment, or he may transfer hot paint or lacquer from the heater to his standard quart for spraying.

P100. Cable Vise

For holding reels of cable on a flatbed trailer, C. A. Scheirer of Havertown, Penna., has developed this vise, now in production and available for utility applications. The vise jaw is in three sizes for cable up to 1¼ in.

In principle, the cable is drawn through a slotted base and the windlass



tightened. The vise is mounted on the fifth-wheel platform of a low-bed trailer and has been tested by the manufacturer on a dynamometer to 26,000 lb line load without slipping. The initial vise has been used by a large Pennsylvania utility for five years with no repairs or parts replacement, the manufacturer stated. He further stated that the vise replaces about $250 worth of hand ratchets, cable and rope which requires about a half hour to rig. The vise may be set in three minutes.

P101. Snow Plow Lift

The driver of a snow plow unit may now operate his plow blade without assistance of a helper, drain on the vehicle's battery, or unsafe diversion from his driving, according to an announcement made by National Lift Co., Waukesha, Wis. National makes a hydraulic pump that operates from the engine fan belt and is controlled by a push-button arrangement mounted on the dash. By running the pump from the fan belt, there is no drain on the vehicle's electric system. The pump is equipped with a clutch which permits it to run only when power is needed.

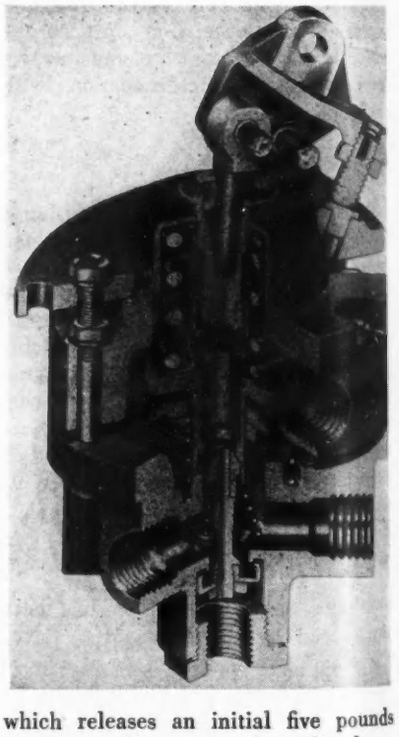
P102. Drum Lathe

Eight feeds are available on the new brake drum lathe recently introduced by Lempco Products, Inc., Bedford, Ohio. The eight feeds, including the patented microfeed of .0025 in. produce finishes that rarely require additional grinding, the manufacturer states. However, a grinding attachment is available.

With a cutting depth of 7½ in. and handling drums of 24 in. diameter, the model no. 505 Drum Perfector is powered with ½ hp motor producing three speeds. Optional accessories available permit the lathe to be used as a reamer drive, hone drive or bench grinder.

P103. Brake Foot Valve

A high capacity air brake foot valve has been developed by the Automotive division of Wagner Electric Co., St. Louis, Mo., for use on trucks and buses. The large ports of the valve interior allow large volumes of controlled air to enter the power cylinders. This volume is metered by a preload type spring



which releases an initial five pounds of air into the system immediately as the foot treadle is pressed.

Time lag is reduced and the necessity of the quick-release and relay valves in many cases is eliminated depending upon the wheelbase of the vehicle involved.

The valve is available in two designs, an actuating arm type for use with pedal linkage and a treadle type construction which mounts directly on the floorboard.

(TURN TO PAGE 180, PLEASE)

CCJ's Truck Specifications

COMPILED FROM DATA SUPPLIED EACH MONTH BY MANUFACTURERS

KEY TO DEFINITIONS

MAKE AND MODEL

Only Domestic Truck Models are listed.

OPTIONAL UNITS

For the express purpose of best fitting the truck to the individual job most of the models listed can be provided with optional engines, transmissions, axles, etc., and these models when so equipped are considered standard stock models.

CHASSIS LIST PRICE

The chassis list price applies to the minimum standard wheelbase with standard tires and standard equipment. All prices are F.O.B. factory. Chassis list price does not include the price of the Cab unless otherwise noted.

RECOMMENDED GROSS VEHICLE WEIGHT FOR NORMAL SERVICE

The Gross Weights published herewith are those supplied by manufacturers as their Recommended Gross Vehicle Weights for Normal Operating Conditions, and are based upon the Maximum Authorized Tire Size listed. In actual practice the manufacturer may either increase or decrease the gross vehicle weight rating when either favorable or unfavorable operating conditions are involved. Since the proper performance of a motor truck depends upon many factors, including grades, road conditions, etc., the gross weights that a manufacturer is prepared to recommend will vary with particular conditions, and the manufacturer's own standard of safety factors. Specific recommendations, therefore, should be obtained from the manufacturer's representative.

CHASSIS WEIGHT

The chassis weight listed includes the weight of the minimum standard wheelbase chassis, with cowl, with standard tires, with standard equipment, with crankcase and cooling system full, and 5 gallons of fuel in the tank. It does not include the weight of the Cab. This applies to C.O.E. as well as conventional chassis types. Exceptions are noted.

STANDARD TIRE SIZE

The standard tire size listed is that which is included in the Chassis List Price.

MAXIMUM AUTHORIZED TIRE SIZE

The tire size listed in this column is the maximum size recommended by the manufacturer of the chassis for the Gross Vehicle Weight for Normal Operating Conditions. It is furnished at extra cost, if it differs from the standard size. Dual rears are understood; exceptions noted.

MINIMUM STANDARD WHEELBASE

The minimum standard wheelbase is the so-called standard wheelbase on which the Chassis List Price is based.

MAXIMUM STANDARD WHEELBASE

The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis maker.

MAXIMUM BRAKE HP.

Maximum Brake Horsepower at Given R.P.M. is actual dynamometer reading without accessories.

GEAR RATIO RANGE

Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

TRACTORS

Unless given the designation (N)— meaning not available as a tractor—all standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

KEY TO ABBREVIATIONS

MAKES—ALL

B—Bendix.
BL—Brown-Lipe.
Bu or Bud—Buda.
BW—Bendix-Westinghouse.
C—Chevrolet.
Cl or Cla—Clark.
Con—Continental.
Cum—Cummins-Diesel.
Eat—Eaton.
F—Ford.
Fu—Fuller.
G-H—Goodyear-Hawley type.
H—Hotchkiss.
Her—Hercules.
HS—Hall-Scott.
L—Lockheed.
LH—Lockheed front, Wagner "hi-Tork" rear.
LT—Lockheed type front, Timken rear.
LW—Lockheed front, Wisconsin rear.
M—Midland.
N.P.—New Process.
O or Ow—Own.
Op or Opt—Optional.
Shu—Shuler.
Spi—Spicer.
T or Tim—Timken-Detroit Axle Co.
Tw—Timken-Detroit—Westinghouse.
TW—Timken-Detroit—Wisconsin.
WG—Warner Gear.
Wau—Waukesha.
W or Wis—Wisconsin.
Wg—Wagner "hi-Tork."
Ws—Westinghouse.
WW—Westinghouse or Wagner

WHEELS DRIVEN

2F—Forward unit of Rear Axle Group.
2R—Rear Unit of Rear Axle Group.
4R—Forward and rear units of Rear Axle Group.
6—All wheels.

BRAKES—SERVICE

Location

4—Four Wheels, front and rear.
4r—Four Wheels, rear only.

Type

I—Internal.
X—External.

Operation

A—Air.
H—Hydraulic.
V—Vacuum.
D or Dp—Dual Primary.

BRAKES—HAND

Location

C—Center of double propeller shaft.
2—Rear wheels.
4—Four wheels.
6—Six wheels.
P—Back of Power Divider.
J—Jackshaft.
T—Transmission.
F—Driveshaft.

Type

D—Tru-Stop disk.
I—Internal.
M—Mechanical.
X—External.
PD—Two drums on rear of power divider.

BRAKE DRUMS

Material

a—Cast alloy iron.
A—American Car Foundry.
c—Cast iron.
Cc—Composite Front, Cast Iron in rear.
Ce—Centrifuse.
Ci—Copper iron.
Co—Composite.
D—Dayton.
E—Ermalite.
G—Gunite.
N—Nickel iron.
S—Steel.

(Where a combination of any of the above is used, the first reference mark applies to the front and the second to the rear drums.)

FRAME

Type

C—Channel.
T—Channel tapered front and rear.
L—Channel reinforced with liner.
B—Channel reinforced with both liner and fishplate.
P—Channel reinforced with plate.
TL—Channel tapered front and rear reinforced with liner.
D—Drop Center.
Tf—Tapered front.
A—Straight section sidemembers, lined with oak inserts.
Z—Reinforced (X) member frame, box type sections.

REAR AXLE

Final Drive and Type

B—Bevel.
CD—Chain Drive.
F—Full-floating.
H or Hy—Hypoid.
d—Dual range axle.
2—Double Reduction.
S—Spiral bevel.
W—Worm.
¾—Three Quarters Floating.
½—Semi-Floating.
T—Torque Tube.

GEAR RATIOS

(**) Only one ratio.

Drive and Torque

H—Hotchkiss (springs).
R—Radius Rods.
L—Parallel Torque Rods.
T—Torque Arm.

GOVERNOR STANDARD

Y—Yes.
N—No.

KEY TO REFERENCES

c.f.—Cab Forward design.
c.o.e.—Cab-Over-Engine design.
(D)—Diesel-engine equipped.
(T)—Designed for tractor use only.
(C)—Converted Ford or Chevrolet Model.
▲—Denotes "Includes Cab" when used with weights or prices.

CHEVROLET

†—Forward control chassis for Door - to - Door delivery bodies. These chassis do not have cowl.
▼—Includes spare tire, full fuel tank and cooling system.
▲—7.50/20 can be used on the front with no decrease in G.V.W. when 8.25/20 are used on dual rear wheels.
::—Own Loadmaster engine available at extra cost.
♦—8.25/20 front tires are required when 9.00/20 dual rears are used.
††—Diameter: (Average) Front, 2.6858; Front Center, 2.7168; Rear Center, 2.7478; Rear, 2.7788. Total Length 5½.
§—4 speed transmission available.
††—Also available in 5.14 ratio.
□—5.43 available.
□□—Two speed axle available.

CORBITT

■—Available with optional tires and axles for less G.V.W. rating.
‡‡—Also available with Cummins HRB 600, HRBB600 and NHB600.

CROSLEY

°°—Pick-up truck only; panel delivery 1360.
‡—Front 1.375 x 1.312; 3 Center 1.375 x .870; 1 Rear 1.500 x 1.499.

DODGE

△—Front only; Rear 7.00/168.
•—Front only; Rear 8.25/16.
‡—Front only; Rear 6.50/208.
¶—Front only; Rear 7.50/20.
♦—Front only; Rear 9.00/20.
†—Front only; Rear 10.00/20.
♦—Rear of transfer case.

DUPLEX

‡—Torque Divider, Timken T70-2 speed.

FEDERAL

*—Diesel engine obtainable.
♦—Five speed transmission obtainable.
♦—Auxiliary transmission Spicer 6231B with 3 forward speeds.
§—Auxiliary transmission Spicer 703F with 3 forward speeds or 8031.
‡—55M, 60M and 65M have single speed, double reduction rear axle.
‡—Radius rods obtainable.
‡—For wheelbases below 196" —9 x 3 x ¼.
•—For shorter wheelbases, 10 x 3½ x ¼.
‡‡—Diesel engine obtainable.
—Auxiliary transmission Spicer 703F or 8031 with 3 forward speeds.
‡‡—Overdrive optional.
▲—Torque Divider Timken T70-2 speed, T50 obtainable.
†—SW3013 obtainable.
♦SW3010 or SD3020 obtainable.

FORD

■—Air brake equipment optional on F-8, Front 16 x 2¼, Rear 16½ x 5½, lining area 533 sq. in.
•—Reinforcement 6.58 x 2.21 x .125 extended to include front spring rear brackets and rear spring front brackets.
†—Reinforcement 8.5 x 2.56 x .15 starts at rear of front spring rear brackets and ends behind rear spring front brackets.
¶—Cowl to axle.

KENWORTH

††—Timken T13129 PA Trailing Axle.

(Turn to Next Page, Please)

OSHKOSH

▲—Includes cab.
■—1091 cu. in.
°°—Hydraulic coupling.
††—Buda 6DC844 optional.
**—Other Cummins 6 cylinder engines optional.
□—Includes cab and dual tires on front, center and rear axles.

REO

♦—Model 331 engine can be furnished.
♦—Two speed axle available.
♣—Double reduction and 2 speed available.

STERLING

†—Rear only; Front 11.00/24.
‡—Rear only; Front 11.00/22.
♦—Own EJ three speed auxiliary transmission furnished.
§—Timken T70 two speed torque divider furnished.
♦—Parking brake at rear of auxiliary transmission.
▼—Rear only; Front 12.00/24.
■—Rear only; Front 14.00/24.
•—Rear only; Front 16.00/24.
●—1125 cu. in.
††—Own model FJ three speed auxiliary transmission furnished.
‡‡—Timken T76 two speed transfer case furnished.
♣♣—Timken T77 two speed transfer case furnished.
♦—Parking brake at rear of transfer case.
‡‡—Tapered, 9 x 7 x 3¼ x ¼.
‡‡—Also available with Cummins Diesel engine and appropriate transmission.

STUDEBAKER

♦—Two speed 6.13-8.10 and H.D. 6.20 or 6.80 optional.
♦♦—Two speed 6.13-8.10 optional.

TRUCKSTELL

*—Single front, dual rear.
□□—With Baumis auxiliary transmission.
♦♦—With Baumis power divider.
♦—2 speed locked in low axle ratio.
▼—Including slip-over reinforcing frame channels.

WARD LA FRANCE

‡—Available with optional rear axles.
▲▲—Available with 11.00/22 or 12.00/20 tires for G.V.W. of 60,000 lbs and optional front and rear axles.
♣♣—Auxiliary transmission Fuller 3A65, 3B65, 3A92 and 3B92.

WILLYS

*—Complete vehicle-Pick-up Type body.
‡—Three speed transmission, 2 speed transfer case.
†—Or Spicer 53-2 at discretion of manufacturer only.

(Continued from Page 83)

Line Number	MAKE AND MODEL	Chassis List Price	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	Forward Speeds	REAR AXLE: Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	Type
	Available																														
1	(c.o.e.)....200				15000	5500▲	7.00/20D	8.25/20	Wau BM	6-3½x4¼	263	5.9	178	78–2800	7–2⅛x10¼	N	WG T9	4	Tim E100DPH	HF	H	** –6.20	Tim 32502H	L4IHV	314	534	a	TX	.....	10x3x¼	T
2	(c.o.e.)....225				16500	6200▲	7.50/20D	8.25/20	Wau BZ	6-4x4¼	320	5.9	235	105–3200	7–2⅛x10¼	N	WG T97	4	Tim E100DPH	HF	H	** –6.20	Tim 32502H	L4IHV	314	534	a	TX	.....	10x3x¼	T
3	(c.o.e.)....250				20000	6400▲	8.25/20D	9.00/20	Wau BZ	6-4x4¼	320	5.9	235	105–3200	7–2⅛x10¼	N	Fu 5A330	5	Tim H100DPH	HF	R	** –6.80	Tim 32502H	L4IHV	314	584	a	TX	.....	10x3x¼	T
4	(c.o.e.)....400				22000	6800▲	9.00/20D	10.00/20	Wau BZ	6-4x4¼	320	5.9	235	105–3200	7–2⅛x10¼	N	Fu 5A330	5	Tim L100DPH	HF	R	** –6.83	Tim 35000H	L4IHV	370	642	a	TX	.....	12x3x¼	T
5	(c.o.e.)....500				23000	7500▲	9.00/20D	10.00/20	Wau MZA	6-4½x4¾	404	5.6	285	130–3000	7–2½x12	Y	Fu 5F430	5	Tim L100DPH	HF	R	** –6.83	Tim 35000H	L4IHV	370	642	a	TX	.....	12x3x¼	T
6	(c.o.e.)....550				28000	8100▲	10.00/20D	11.00/20	Wau MZA	6-4½x4¾	404	5.6	285	130–3000	7–2½x12	Y	Fu 5F430	5	Tim Q100DPH	HF	R	** –7.80	Tim 26452H	L4IHV	458	846	a	TX	.....	12x3x¼	T
7	(c.o.e.)..550 X				32000	9600▲	10.00/20D	11.00/24	Wau MZA	6-4½x4¾	404	5.6	285	130–3000	7–2½x12	Y	Fu 5F430	5	Tim S200DPH	2F	R	** –7.84	Tim 26452H	L4IHV	576	1054	a	FD	.....	14x3x☆	T
8	(c.o.e.)....600				28000	10000▲	10.00/20D	11.00/24	Wau 140 GK	6-4½x5½	525	6.4	425	172–2600	7–3½x13⅜	Y	Fu 5A650	5	Tim R100P	HF	R	** –7.40	Tim 26452TW	L4IA	566	950	a	FD	.....	14x3x☆	T
9	(c.o.e.)....601				28000	10900▲	10.00/20D	11.00/24	Wau 145 GK	6-5¼x6	779	6.2	595	240–2400	7–3½x17¾	Y	Spi 7851	4	Tim R100P	HF	R	** –7.40	Tim 26452TW	L4IA	566	950	a	FD	.....	14x3x☆	T
10	(D) (c.o.e.)....602				28000	11200▲	10.00/20D	11.00/24	Cum HB600	6-4¾x6	672	17.	500	150–1800	7–4½x16½	Y	Spi 7851	4	Tim R100P	HF	R	** –7.40	Tim 26452TW	L4IA	566	950	a	FD	.....	14x3x☆	T
11	Biederman...NSH		130	190	21000	6070	8.25/20D	10.00/20	Her JXLD	6-4x4½	339	6.9	272	131–3200	7–2½x10‡‡	N	Fu 5A330	5	TimH700DPH	SF	H	** –7.2	Tim 35000HX	LH41H	514	744	G	T	60	9x3x¼	C
12	.....NSD		130	190	21000	6070	8.25/20D	10.00/20	Her JXLD	6-4x4½	339	6.9	272	131–3200	7–2½x10‡‡	N	Fu 5A330	5	TimH700DPH	2D	H	6.13–8.15	Tim 35000HX	LH41H	514	744	G	T	60	9x3x¼	C
13	.....NSR		142	171	21000	7420	8.25/20D	10.00/20	Her JXLD	6-4x4½	339	6.9	272	131–3200	7–2½x10‡‡	N	Spi 3541UP	5	TimH110DPH	HFd	H	** –6.4	Tim 35141PX	T4A	.....	.....	G	T	.....	9x3x¼	C
14	.....HL		93	197	30000	12200	10.00/24D	12.00/24	Wau 140 GK	6-4½x5½	525	6.4	425	172–2600	7–3¼x13‡‡	Y	Spi 6252A	5	Tim R200	HFd	H	6.41–8.37	Tim 36000TW	T4A	.....	.....	G	T	81	10x3x☆	C
15	Brown...R6572T		144	166	33000	.....	11.00.22	12.00/24	Con R6572	6-4¾x5⅝	572	5.9	440	172–2600	7–3¼x14½	Y	Spi 6252B	5	Tim R100	Hy	H	** –5.28	Tim FE900	Ws4IA	.....	.....	a	2M	67	9¼x3½x¼	Tf
16	.....140GKT		144	166	33000	.....	11.00/22	12.00/24	Wau 140GK	6-4½x5½	525	6.4	425	168–2400	7–2¾x13‡‡	Y	Spi 6252B	5	Tim R100	Hy	H	** –5.28	Tim FE900	Ws4IA	.....	.....	a	2M	67	9¼x3½x¼	Tf
17	(D)....HB600T		144	166	33000	.....	11.00/22	12.00/24	Cum HB600	6-4¾x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 5A650	5	Tim R100	Hy	H	** –5.28	Tim FE900	Ws4IA	.....	.....	a	2M	67	9¼x3½x¼	Tf
18	(D)....HRB600T		144	166	33000	.....	11.00/22	12.00/24	Cum HRB600	6-5½x6	743	15.	530	165–1800	.....	.....	Fu 5A920	5	Tim R100	Hy	H	** –5.28	Tim FE900	Ws4IA	.....	.....	a	2M	67	9¼x3½x¼	Tf
19	(D)....NHB600T		144	166	33000	.....	11.00/22	12.00/24	Cum NHB600	6-5½x6	743	15.	575	200–2100	.....	.....	Fu 5A920	5	Tim S200	2F	H	** –6.42	Tim FE900	Ws4IA	.....	.....	a	2M	67	9¼x3½x¼	Tf
20	(D)..HRBB600T		144	166	33000	.....	11.00/22	12.00/24	Cum HRBB600	6-5½x6	743	15.	500	175–2000	.....	.....	Fu 5A650	5	Tim R100	Hy	H	** –5.28	Tim FE900	Ws4IA	.....	.....	a	2M	67	9¼x3½x¼	Tf
21	(D)...6DA844T		144	166	33600	.....	11.00/22	12.00/24	Bu 6DC844	6-5¼x6½	844	...	640	210–2100	.....	.....	Spi 8045	4	Tim R300	.....	H	.....	Tim FE900	Ws4IA	.....	.....	a	2M	67	9½x3½x¼	Tf
22	Chevrolet.....JP	977	116	.....	4800	▼2565	6.00/16S	158	O-Thrift Mas.	6-3½x3¾	216	6.6	176	92–3400	4– ♦ ♦	N	Own	4	Own	Hy ‡	T	** –4.11	Own	O4IH	158	259	Co	2IM	39	5¾x2¼x☆	C
23	.....JR	1106	125	.....	5800	▼2825	158	7.50/17S	O-Thrift Mas.	6-3½x3¾	216	6.6	176	92–3400	4– ♦ ♦	N	Own	§3	Own	Hy	H	†† –4.57	Own	O4IH	176	272	Co	2IM	48¼	5‡‡x2¼x☆	C
24	†Fwd. Control..JT	1127	125	.....	7000	▼2675	158	7.50/17S	O-Load Mas.	6-3☆x3‡‡	235	6.7	182	92–3400	4– ♦ ♦	N	Own	§3	Own	HyF	H	** –5.14	Own	O4IH	202	302	Co	2IM	.....	5‡‡x2¼x☆	C
25	.....JS	1191	137	.....	8800	▼3185	7.00/17S	7.00/18	O-Thrift Mas.	6-3½x3¾	216	6.6	176	92–3400	4– ♦ ♦	N	Own	4	Own	HyF	H	** –5.14	Own	O4IH	248	371	Co	2IM	60	7x2¾x☆	C
26	†Fwd. Control..JU	1227	137	••	10000	▼2895	7.00/17S	7.00/18	O-Load Mas.	6-3☆x3‡‡	235	6.7	182	92–3400	4– ♦ ♦	N	Own	4	Own	HyF	H	** –5.14	Own	O4IH	248	371	Co	2IM	.....	7x2¾x☆	C
27	.....UJ	1279	137	.....	14000	▼3770	6.50/20D	7.50/20	O-Thrift Mas.	6-3½x3¾	216	6.6	176	92–3400	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	60	7x2¼x☆	C
28	.....UK	1315	161	.....	14000	▼3930	6.50/20D	7.50/20	O-Thrift Mas.	6-3½x3¾	216	6.6	176	92–3400	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	84	8¼x2¼x¼	C
29	(School bus)..UL	1449	161	.....	12000	▼4170	6.50/20D	7.00/20	O-Thrift Mas.	6-3½x3¾	216	6.6	176	92–3400	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	.....	8¼x2½x¼	C
30	.....UVS	1598	137	.....	15000	▼4250	7.50/20D	9.00/20▲♦	O-Load Mas.	6-3☆x3‡‡	235	6.7	193	105–3600	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	60	8¼x2½x¼	C
31	.....UWS	1635	161	.....	15000	▼4330	7.50/20D	9.00/20▲♦	O-Load Mas.	6-3☆x3‡‡	235	6.7	193	105–3600	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	84	8¼x2½x¼	C
32	.....UYS	1676	179	.....	15000	▼4460	7.50/20D	9.00/20▲♦	O-Load Mas.	6-3☆x3‡‡	235	6.7	193	105–3600	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	102	8¼x2½x¼	C
33	(c.o.e.)....UPS	▲1980	110	.....	15000	▲▼4730	7.50/20D	9.00/20▲♦	O-Load Mas.	6-3☆x3‡‡	235	6.7	190	100–3500	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	60½	8¼x2½x¼	C
34	(c.o.e.)....URS	▲2016	134	.....	15000	▲▼4800	7.50/20D	9.00/20▲♦	O-Load Mas.	6-3☆x3‡‡	235	6.7	190	100–3500	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	84½	8¼x2½x¼	C
35	(c.o.e.)....USS	▲2052	158	.....	15000	▲▼4910	7.50/20D	9.00/20▲♦	O-Load Mas.	6-3☆x3‡‡	235	6.7	190	100–3500	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	108½	8¼x2½x¼	C
36	(c.o.e.)....UP	▲1980	110	.....	16000	▲▼4730	7.50/20D	9.00/20▲♦	O-Load Mas.	6-3☆x3‡‡	235	6.7	190	100–3500	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	60½	8¼x2½x¼	C
37	(c.o.e.)....UR	▲2016	134	.....	16000	▲▼4800	7.50/20D	9.00/20▲♦	O-Load Mas.	6-3☆x3‡‡	235	6.7	190	100–3500	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	84½	8¼x2½x¼	C
38	(c.o.e.)....US	▲2052	158	.....	16000	▲▼4910	7.50/20D	9.00/20▲♦	O-Load Mas.	6-3☆x3‡‡	235	6.7	190	100–3500	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	108½	8¼x2½x¼	C
39	.....UV	1598	137	.....	16000	▼4250	7.50/20D	9.00/20▲♦	O-Load Mas.	6-3☆x3‡‡	235	6.7	193	105–3600	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	60	8¼x2½x¼	C
40	.....UW	1635	161	.....	16000	▼4330	7.50/20	9.00/20▲♦	O-Load Mas.	6-3☆x3‡‡	235	6.7	193	105–3600	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	84	8¼x2½x¼	C
41	.....UY	1676	179	.....	16000	▼4465	7.50/20D	9.00/20▲♦	O-Load Mas.	6-3☆x3‡‡	235	6.7	193	105–3600	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	102	8¼x2½x¼	C
42	(School bus)..UX	1686	199	.....	16000	▼4680	7.50/20D	8.25/20	O-Load Mas.	6-3☆x3‡‡	235	6.7	193	105–3600	4– ♦ ♦	Y	Own	4	Own	HyF	H	▫▫▫▫ –6.17	Own	O4IH	356	553	Ce	TIX	.....	8‡‡x2‡‡x☆	C
43	Corbitt....G101B■		137	.....	22000	.....	9.00/20	10.00/20	Con M6330	6-4x4⅝	330	6.1	248	104–2800	7–2⅝x12	Y	Cla 205V	5	Tim L100	HF	H	4.11–7.40	Tim 32502	LT41HV	466	820	a	TX	61	8x3¼x¼	T
44	.....G301B■		155	.....	26000	.....	10.00/22	11.00/22	Con B6371	6-4½x4⅝	371	6.0	280	100–2600	7–2⅞x13½	Y	Fu 5A43	5	Tim Q200	2F	H	7.77–8.53	Tim 35100	LT41HV	730	1016	a	TX	71	8¼x3¼x☆	T
45	.....G30 'B■		145	.....	28000	.....	10.00/22	11.00/22	Con B6427	6-4☆x4⅞	427	5.9	325	127–2600	7–2⅞x13½	Y	Fu 5A43	5	Tim R300	2F	H	6.41–8.37	Tim 35100	Ws4IA	598	950	a	TX	61	8½x3¼x☆	T
46	.....G603B34		155	.....	34000	.....	10.00/20	12.00/24	Con R6602	6-4½x5⅝	602	5.9	464	200–2600	7–3¼x14½	Y	Fu 5A65	5	Tim U200	2F	H	5.91–9.76	Tim FE900	Ws4IA	672	1054	a	TD	72	10½x3¼x¼	TL
47	(T).....G101T20		137	.....	20000	.....	8.25/20	9.00/20	Con M6330	6-4x4⅛	330	6.1	248	104–2800	7–2⅝x12	Y	Cla 205V	5	Tim H100	HF	H	** –5.29	Tim 32502	Ws4IA	418	642	a	TX	61	7½x3¼x☆	T
48	(T).....G302T22		137	.....	22000	.....	9.00/20	10.00/22	Con B6427	6-4☆x4⅞	427	5.9	325	127–2600	7–2⅞x13½	Y	Fu 5A43	5	Tim L100	HF	H	** –5.29	Tim 32502	Ws4IA	490	746	a	TX	61	7½x3¼x☆	T
49	(T).....G402T25		145	.....	25000	.....	10.00/20	10.00/22	Con T6427	6-4☆x4⅞	427	6.3	336	151–2600	7–2⅞x13½	Y	Fu 5A43	5	Tim Q100	HF	H	5.29–6.83	Tim 35000	Ws4IA	562	850	a	TX	61	8x3¼x¼	T
50	(T).....G602T27		147	.....	28000	.....	10.00/22	11.00/24	Con R6572	6-4½x5½	572	5.9	440	189–2600	7–3¼x14½	Y	Spi 6253	5	Tim R100	HF	H	6.17–7.40	Tim 35100	Ws4IA	598	950	a	2M	64	8½x3¼x☆	T
51	(T)(D) D202T20		137	.....	20000	.....	8.25/20	9.00/20	Her DJXH	6-3½x4½	298	15.	233	99–2600	7–3x10¼	Y	Cla 205VO	5	Tim H300	2dF	H	6.13–8.15	Tim 32502	Ws4IA	418	642	a	TX	61	7½x3¼x☆	T
52	(T)(D) D401T23		145	.....	23000	.....	10.00/20	10.00/22	Her DWXD	6-4¼x4¾	404	15.	404	135–2600	7–3½x11⅝	Y	Fu 5A430	5	Tim L300	2dF	H	6.32–8.22	Tim 35000	Ws4IA	490	746	a	TX	61	8x3¼x¼	T
53	(T)(D) D402T25		145	.....	25000	.....	10.00/20	10.00/22	Her DWXLD	6-4¼x5	426	15.	336	142–2600	7–3½x11⅝	Y	Fu 5A430	5	Tim Q300	2dF	H	6.53–8.53	Tim 35000	Ws4IA	562	850	a	TX	61	8x3¼x¼	T
54	(T)(D) D404T26		145	.....	26000	.....	10.00/22	.....	Cum JB8600	6-4½x5	401	...	345	150–2500	7–3¾x..	Y	Fu 5A620	5	Tim Q100	HF	H	5.29–6.83	Tim 35100	Ws4IA	598	950	a	2M	61	8x3¼x¼	T
55	(T)(D) D601T27		150	.....	27000	.....	10.00/22	11.00/24	Her DRXC	6-4⅝x5¼	529	15.	400	147–2200	7–3½x13¾	Y	Spi 6253	5	Tim R300	2dF	H	6.41–8.37	Tim 35100	Ws4IA	598	950	a	2M	67	8¼x3¼x☆	T
56	(T)(D)D800 Ser.‡‡		160	.....	30000	.....	10.00/22	11.00/24	Cum HB600	6-4¾x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 5C720	5	Tim R100	HF	H	5.29–6.83	Tim FE900	Ws4IA	598	950	a	2M	66	8¼x3¼x☆	T
57	Crosley.....B		80	.....	2130	1330°°	4.50/12	.....	Own	4–2½x2¼	44	7.8	33	25.55200	5–‡		WG-ASI-T92	3	Spi	2F	..	** –5.17	Own	B4IH	65☆	.....	e	2	.....	.....	C
58	Dodge.....B-3-B		108	108	4850	.....	6.00/16S	6.50/16S	Own T-306	6-3¼x4⅛	218	7.0	175	97–3600	4–2¼x4.8	N	NP-88840	3	Own T-306	H‡	H	3.73–4.78	Own T-306	O4IH	175	264	Ce	TX	40	☆x2☆x6☆	C
59	.....B-3-C		116	116	5800	.....	7.00/15S	7.00/15S	Own T-308	6-3¼x4⅛	218	7.0	175	97–3600	4–2¼x4.8	N	NP-88840	3	Own T-308	H‡	H	4.1 –4.78	Own T-308	O4IH	184	276	Co	TX	48	☆x2☆x6☆	C
60	.....B-3-D		116	126	8000	.....	6.00/16S^	7.50/17	Own T-310	6-3¼x4⅛	230	7.0	190	103–3600	4–2¼x4.8	N	NP-88770	3	Own T-310	HyF	H	3.9 –4.89	Own T-310	O4IH	209	316	Co	TX	48	☆x2☆x6½☆	C
61	Rt. Van Sp. B3DU		102	117	7900	.....	6.50/16^	8.25/16S	Own T-164	6-3¼x4⅛	230	7.0	190	99–3600	4–2¼x4.8	N	NP-88490	3	Own T-164	HyF	H	3.9 –4.89	Own T-164	O4IH	209	316	Co	TX	.....	☆x2☆x6☆	C
62	Rt. Van Sp. B3EU		102	142	10100	.....	7.50/16*	9.00/16S	Own T-165	6-3¼x4⅛	230	7.0	190	99–3600	4–2¼x4.8	N	NP-88500	4	Own T-165	HyF	H	4.89–5.8	Own T-165	O4IH	234	355	Co	TX	.....	☆x2☆x6☆	C
63	.....B-3-FL		128	152	9000	.....	6.00/20†	8.25/20S	Own T-314	6-3☆x4¼	236	6.6	192	109–3600	4–2⅛x5.04	N	NP-39760	4	Own T-314	HyF	H	5.62–6.8	Own T-314	O4IH	336	479	Ce	TX	60	☆x2☆x8☆	C
64	.....B-3-F		128	170	13500	.....	6.50/20	7.50/20	Own T-314	6-3☆x4¼	236	6.6	192	109–3600	4–2⅛x5.04	N	NP-39760	4	Own T-314	HyF	H	5.62–6.8	Own T-314	O4IH	336	479	Ce	TX	60	☆x2☆x8☆	C
65	.....B-3-FA		128	170	13500	.....	6.50/20	7.50/20	Own T-314	6-3☆x4¼	236	6.6	192	109–3600	4–2⅛x5.04	N	NP-39760	4	Eat 1350	SFd	H	5.83–8.11	Own T-314	O4IH	336	479	Ce	TX	60	☆x2☆x8☆	C
66	.....B-3-G		128	192	14500	.....	6.50/20¶	8.25/20	Own TX-314	6-3☆x4¼	236	6.6	192	109–3600	4–2⅛x5.04	N	NP-88570	4	Own TX-314	HyF	H	5.62–6.8	Own TX-314	O4IH	336	479	Ce	TX	60	.2ix2‡‡x8☆	C
67	.....B-3-GA		128	192	14500	.....	6.50/20¶	8.25/20	Own TX-314	6-3☆x4¼	236	6.6	192	109–3600	4–2⅛x5.04	N	NP-88570	4	Eat 1350	SFd	H	5.83–8.81	Own TX-314	O4IH	336	479	Ce	TX	60	.2ix2‡‡x8☆	C
68	.....B-3-GM		107	161	14750	.....	6.50/20	8.25/20	Own TX-326	6-3☆x4¼	236	6.6	186	105–3600	4–2⅛x5.04	N	NP-88850	4	Own TX-326	HyF	H	5.62–6.8	Own TX-326	O4IH	336	479	Ce	TX	60	.2ix2‡‡x8☆	C
69	.....B-3-GMA		107	161	14750	.....	6.50/20	8.25/20	Own TX-326	6-3☆x4¼	236	6.6	186	105–3600	4–2⅛x5.04	N	NP-88850	4	Eat 1350	SFd	H	5.83–8.81	Own TX-326	O4IH	336	479	Ce	TX	60	.2ix2‡‡x8☆	C
70	.....B-3-H		128	192	16000	.....	7.50/20	8.25/20	Own T-316	6-3☆x4¼	236	6.6	193	109–3600	4–2⅛x5.04	N	NP-88570	4	Own T-316	HyF	H	6.28–6.8	Own T-316	O4IHV	336	479	Ce	TX	60	.2ix2‡‡x8☆	C
71	.....B-3-HA		128	192	16000	.....	7.50/20	8.25/20	Own T-316	6-3☆x4¼	236	6.6	193	109–3600	4–2⅛x5.04	N	NP-88570	4	Eat 1350	SFd	H	5.83–8.81	Own T-316	O4IHV	336	479	Ce	TX	60	.2ix2‡‡x8☆	C
72	.....B-3-HM		107	161	16250	.....	7.50/20	8.25/20	Own T-328	6-3☆x4¼	236	6.6	186	105–3600	4–2⅛x5.04	N	NP-88850	4	Own T-328	HyF	H	6.28–6.8	Own T-328	O4IHV	336	479	Ce	TX	60	.2ix2‡‡x8☆	C
73	.....B-3-HMA		107	161	16250	.....	7.50/20	8.25/20	Own T-328	6-3☆x4¼	236	6.6	186	105–3600	4–2⅛x5.04	N	NP-88850	4	Eat 1350	SFd	H	5.83–8.81	Own T-328	O4IHV	336	479	Ce	TX	60	.2ix2‡‡x8☆	C
74	.....B-3-HT		128	192	16000	.....	7.50/20	8.25/20	Own T-316	6-3☆x4¼	236	6.6	193	109–3600	4–2⅛x5.04	N	NP-88570	4	Own T-316	HyF	H	6.28–6.8	Own T-316	O4IHV	336	479	Ce	TX	60	.2ix2‡‡x8☆	C
75	.....B-3-HHA		128	192	16000	.....	7.50/20	8.25/20	Own T-316	6-3☆x4¼	236	6.6	193	109–3600	4–2⅛x5.04	N	NP-88570	4	Eat 1350	SFd	H	5.83–8.81	Own T-316	O4IHV	336	479	Co	TX	60	.2ix2‡‡x8☆	C

(Turn to Page 86, Please)

For Key to References and Abbreviations See Page 87.

Tough.. but oh so gentle

TOUGH ON OIL-PUMPING • GENTLE ON CYLINDER WALLS

• Whatever the engine condition, whatever the operating condition, Hastings gives you the right combination built around the famous Steel-Vent oil control ring.

Steel-Vent really controls oil. It can't clog. Oil flows freely through the spacer's wide vents. In every installation, it *stops* oil-pumping—*checks* cylinder wear and *restores* engine performance, too.

Hastings Steel-Vent is the one ring that's engineered exclusively for replacement service and for *all* replacement service—in re-bore, re-ring and re-sleeve jobs. Use it everytime.

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THE RIGHT COMBINATION FOR EVERY ENGINE CONDITION

STEEL-VENT SET
—The famous Tough-but-oh-so-Gentle steel oil control ring in a Motor Engineered Set.

HASTINGS 2C SET
—With chrome on the two oil control rings, the Steel-Vent and the Hastings Chrom-lube (an auxiliary type oil-compression ring).

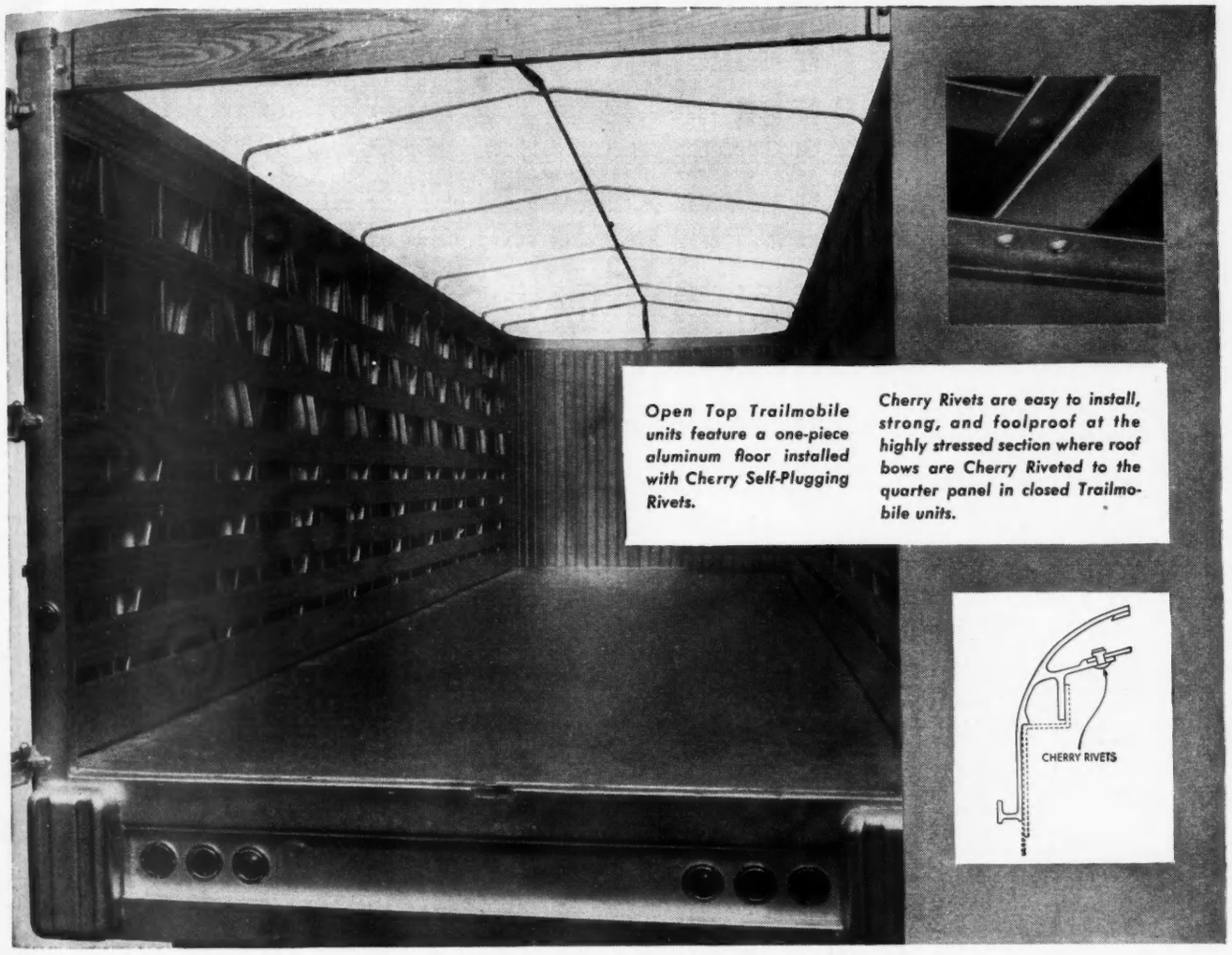
HASTINGS 3C SET
—A complete chrome set-up with Chrom-lube, Chrome-Faced Steel-Vent and Chrome-Test top compression ring, for extreme operating conditions.

(Continued from Page 84)

Line Number	MAKE AND MODEL	Chassis List Price	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Sizes (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	Forward Speeds	REAR AXLE: Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	Type
	Dodge—Cont'd																														
1	B-3-HHM		107	161	16250		7.50/20	8.25/20	Own T-328	6–3 7/16 x4 1/4	236	6.6	186	105–3600	4–2 1/4 x5.04	Y	NP-88850	4	Own T-328	HyF	H	6.28–6.8	Own T-328	O4IHV	336	479	Co	TX	60	.2|x2 ‖ x8	C
2	B-3-HHMA		107	161	16250		7.50/20	8.25/20	Own T-328	6–3 7/16 x4 1/4	236	6.6	186	105–3600	4–2 1/4 x5.04	Y	NP-88850	4	Eat 1350	SFd	H	5.83–8.81	Own T-328	O4IHV	336	479	Co	TX	60	.2|x2 ‖ x8	C
3	B-3-JL		128	212	17000		6.50/20	9.00/20	Own T-318	6–3 7/16 x4 1/2	250	6.6	206	114–3600	4–2 1/2 x5.04	Y	NP-89410	5	Own T-318	HyF	H	6.28–7.16	Own T-318	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
4	B-3-JAL		128	212	17000		6.50/20	9.00/20	Own T-318	6–3 7/16 x4 1/2	250	6.6	206	114–3600	4–2 1/2 x5.04	Y	NP-89410	5	Eat 1350	SFd	H	5.83–8.81	Own T-318	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
5	B-3-J		128	212	17000		6.50/20	9.00/20	Own T-318	6–3 7/16 x4 1/2	250	6.6	206	114–3600	4–2 1/2 x5.04	Y	NP-89410	5	Own T-318	HyF	H	6.28–7.16	Own T-318	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
6	B-3-JA		128	212	17000		6.50/20	9.00/20	Own T-318	6–3 7/16 x4 1/2	250	6.6	206	114–3600	4–2 1/2 x5.04	Y	NP-89410	5	Eat 1350	SFd	H	5.83–8.81	Own T-318	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
7	B-3-JML		107	161	17250		6.50/20	9.00/20	Own T-330	6–3 7/16 x4 1/2	250	6.6	200	109–3600	4–2 1/2 x5.04	Y	NP-89430	5	Own T-330	HyF	H	6.28–7.16	Own T-330	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
8	B-3-JMAL		107	161	17250		6.50/20	9.00/20	Own T-330	6–3 7/16 x4 1/2	250	6.6	200	109–3600	4–2 1/2 x5.04	Y	NP-89430	5	Eat 1350	SFd	H	5.83–8.81	Own T-330	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
9	B-3-JM		107	161	17250		6.50/20	9.00/20	Own T-330	6–3 7/16 x4 1/2	250	6.6	200	109–3600	4–2 1/2 x5.04	Y	NP-89430	5	Own T-330	HyF	H	6.28–7.16	Own T-330	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
10	B-3-JMA		107	161	17250		6.50/20	9.00/20	Own T-330	6–3 7/16 x4 1/2	250	6.6	200	109–3600	4–2 1/2 x5.04	Y	NP-89430	5	Eat 1350	SFd	H	5.83–8.81	Own T-330	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
11	B-3-KL		128	212	18000		8.25/20♦	9.00/20	Own TX-318	6–3 7/16 x4 1/2	250	6.6	206	114–3600	4–2 1/2 x5.04	Y	NP-89410	5	Tim H-101	HyF	H	6.8 –7.2	Own TX-318	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
12	B-3-KAL		128	212	18000		8.25/20	9.00/20	Own TX-318	6–3 7/16 x4 1/2	250	6.6	206	114–3600	4–2 1/2 x5.04	Y	NP-89410	5	Eat 1650	SFd	H	6.14–9.04	Own TX-318	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
13	B-3-K		128	212	18000		8.25/20	9.00/20	Own TX-318	6–3 7/16 x4 1/2	250	6.6	206	114–3600	4–2 1/2 x5.04	Y	NP-89410	5	Tim H-101	HyF	H	6.8 –7.2	Own TX-318	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
14	B-3-KA		128	212	18000		8.25/20	9.00/20	Own TX-318	6–3 7/16 x4 1/2	250	6.6	206	114–3600	4–2 1/2 x5.04	Y	NP-89410	5	Eat 1650	SFd	H	6.14–9.04	Own TX-318	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
15	B-3-KML		107	161	18250		8.25/20	9.00/20	Own TX-330	6–3 7/16 x4 1/2	250	6.6	200	109–3600	4–2 1/2 x5.04	Y	NP-89430	5	Tim H-101	HyF	H	6.8 –7.2	Own TX-330	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
16	B-3-KMAL		107	161	18250		8.25/20	9.00/20	Own TX-330	6–3 7/16 x4 1/2	250	6.6	200	109–3600	4–2 1/2 x5.04	Y	NP-89430	5	Eat 1650	SFd	H	6.14–9.04	Own TX-330	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
17	B-3-KM		107	161	18250		8.25/20	9.00/20	Own TX-330	6–3 7/16 x4 1/2	250	6.6	200	109–3600	4–2 1/2 x5.04	Y	NP-89430	5	Tim H-101	HyF	H	6.8 –7.2	Own TX-330	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
18	B-3-KMA		107	161	18250		8.25/20	9.00/20	Own TX-330	6–3 7/16 x4 1/2	250	6.6	200	109–3600	4–2 1/2 x5.04	Y	NP-89430	5	Eat 1650	SFd	H	6.14–9.04	Own TX-330	O4IHV	396	553	e	TX	60	½x2 ‖ x8	CP
19	B-3-R		130	229	19000		7.50/20	9.00/20	Own T-320	6–3 3/4 x4 5/8	306	6.4	253	137–3000	7.3x11.23	Y	NP-88220	5	Tim H-100	HyF	H	6.8 –7.2	Own T-320	O4IHV	397	609	e	TX	60	½x2 ‖ x9	CP
20	B-3-RA		130	229	19000		7.50/20	9.00/20	Own T-320	6–3 3/4 x4 5/8	306	6.4	253	137–3000	7.3x11.23	Y	NP-88220	5	Tim H-300	SFd	H	6.16–8.19	Own T-320	O4IHV	397	609	e	TX	60	½x2 ‖ x9	CP
21	B-3-T		130	190	22000		7.50/20	10.00/20	Own T-322	6–3 3/4 x5	331	6.4	280	145–3000	7–3x11.23	Y	NP-88450	5	Tim L-100	HyF	H	6.8 –7.2	Tim 32500	O4IHV	425	666	e	TX	60	¼x3x10	CP
22	B-3-TA		130	190	22000		7.50/20	10.00/20	Own T-322	6–3 3/4 x5	331	6.4	280	145–3000	7–3x11.23	Y	NP-88450	5	Tim L-300	SFd	H	6.36–9.18	Tim 32500	O4IHV	425	666	e	TX	60	¼x3x10	CP
23	B-3-V		130	190	24000		9.00/20†	11.00/20	Own TX-322	6–3 3/4 x5	331	6.4	280	145–3000	7–3x11.23	Y	NP-88450	5	Tim Q-100	HyF	H	6.8 –7.8	Tim 32500	O4IHV	486	770	e	TX	60	¼x3x10	CP
24	B-3-VA		130	190	24000		9.00/20†	11.00/20	Own TX-322	6–3 3/4 x5	331	6.4	280	145–3000	7–2x11.23	Y	NP-88450	5	Tim Q-300	SFd	H	6.42–9.55	Tim 32500	O4IHV	486	770	e	TX	60	¼x3x10	CP
25	B3YL, Y		130	190	28000		9.00/20†	11.00/20	Own T-324	6–4x5	377	6.5	330	154–3000	7–3x11.23	Y	Cla-290-V2	5	Tim Q-100	HyF	H	6.8 –7.4	Tim 32500	O4IHV	486	770	e	TX	60	¼x3 1/16 x10‖	CP
26	B3YAL, YA		130	190	28000		9.00/20†	11.00/20	Own T-324	6–4x5	377	6.5	330	154–3000	7–3x11.23	Y	Cla-290-V2	5	Tim Q-300	SFd	H	6.42–8.38	Tim 32500	O4IHV	486	770	e	TX	60	¼x3 1/16 x10‖	CP
27	Sch Bu's B-3-FS		152	170	13000		6.50/20	7.50/20	Own TS-314	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04		NP-39760	4	Own TS-314	HyF	H	5.62–6.8	Own TS-314	O4IHV	336	479	Ce	TX	.....	.2|x2 ‖ x8	C
28	B3-GS		192	192	14650		7.50/20	8.25/20-10	Own TXS-314	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04		NP-88570	4	Own TXS-314	HyF	H	5.62–6.8	Own TXS-314	O4IHV	336	479	Ce	TX	.....	.2|x2 ‖ x8	C
29	B3-HHS		192	192	15500		7.50/20	8.25/20	Own TS-316	6–3 7/16 x4 1/4	236	6.6	193	109–3600	4–2 1/2 x5.04		NP-88570	4	Own TS-316	HyF	H	5.62–6.8	Own TS-316	O4IHV	336	479	Ce	TX	.....	.2|x2 ‖ x8	C
30	B-3-JS		212	212	17000		7.50/20	8.25/20	Own TS-318	6–3 7/16 x4 1/2	250	6.6	206	114–3600	4–2 1/2 x5.04		NP-89410	5	Own TS-318	HyF	H	6.28–7.16	Own TS-318	O4IHV	396	553	e	TX	.....	½x2 ‖ x8	CP
31	B-3-RS		229	229	19000		8.25/20	9.00/20	Own TS-320	6–3 3/4 x4 5/8	306	6.4	245	122–3200	7–3x11.23	Y	NP-88220	5	Tim H100	HyF	H	6.8 –7.2	Tim 32500	O4IHV	397	609	e	TX	.....	½x2 ‖ x9	CP
32	Duplex T		136	220	20000	6600	8.25/20D	9.00/20	Her JXD	6–4x4 1/4	320	6.2	240	113–3000	7–2 1/4 x10‖	Y	Fu 5B330	5	Tim H100	B	H	** –7.20	Tim 32502	L4IHV	420	654	A	TX	57 1/4	9 1/4x3 1/4 x	C
33	TH-404		136	220	20000	6900	8.25/20D	9.00/20	Her WXLC3	6–4 1/4 x4 1/4	404	5.8	312	139–2600	7–2 3/4 x13 1/4	Y	Fu-5A430	5	Tim H-300	DF	H	6.13–8.15	Tim 32502	L4IHV	420	654	A	TX	49 1/4	9 1/4x3 1/2 x	C
34	R		136	220	28000	8820	9.00/20D	10.00/20	Her WXLC-3	6–4 1/4 x4 1/4	404	5.8	312	139–2600	7–2 3/4 x13 1/4	Y	Fu 5A43	5	Tim Q300	DF	R	6.53–8.53	Tim FD900	L4IHV	730	1016	A	TX	49 1/4	9 1/4x3 1/2 x	C
35	SH-501		172	208	28000	9500	10.00/20	11.00/20	Her RXB	6–4 1/2 x5 1/4	501	5.4	360	137–2400	7–3x13 1/4	Y	Fu 5A620		Tim Q200	2F	R	** –7.77	Tim FD900	BW41A	730	1016	A	TX	61 1/4	9 1/4x3 1/2 x	C
36	JHA		148	220	32000	9800	10.00/20D	11.00/20	Her RXB	6–4 1/2 x5 1/4	501	5.4	360	137-2400	7–3x13 1/4	Y	Fu 5A620	5	Tim S200	2F	R	** –9.83	Tim FE900	BW41A	912	1311	A	TX	61 1/4	10 1/4x3 1/2 x	C
37	JH-558		148	220	32000	9800	10.00/20D	11.00/20	Her RXLD	6–4 3/4 x5 1/4	558	6.3	430	154–2400	7–3 1/2 x13 1/4	Y	Fu-5C650	5	Tim S-300	DF	R	6.41–8.37	Tim FE900	BW41A	912	1311	A	TX	60 1/4	10 1/4x3 1/2 x	C
38	KH		148	220	34000	10500	11.00/20D	11.00/20	Her RXC	6–4 1/2 x5 1/4	529	5.4	395	132–2300	7–3x13 1/4	Y	Fu 5A620	5	Tim U-200	2F	R	** –9.83	Tim FE900	BW41A	912	1311	A	TX	60 1/4	10 1/4x3 1/2 x	C
39	LH		148	220	37000	11300	11.00/20D	11.00/20	Her RXLD	6–4 3/4 x5 1/4	558	5.4	430	154–2400	7–3 1/2 x13 1/4	Y	Fu 5C650	5	Tim U-200	2F	R	** –9.83	Tim FE900	BW41A	912	1311	A	TX	60 1/4	10 1/4x3 1/2 x	C
40	Federal 1501T		136	196	12000	▲4880	6.50/20S	7.50/20S	Here QXLDF	6–3 7/16 x4 1/4	236	6.6	190	90–3200	7–2 1/4 x10	N	WG T9	4	T53547DPH	BF	H	5.66	Tim 30000H X	L4IHV	310	482	a	TX	60 1/2	9x3x1/4	T
41	1601T		136	250	16000	▲5370	7.00/20D	8.25/20	Her QXLDF	6–3 7/16 x4 1/4	236	6.6	190	90–3200	7–2 1/2 x10	N	WG T9	4	T 53547DPH	BF	H	** –5.66	Tim 30000H X	L4IHV	310	482	a	TX	60 1/2	9 1/4x3x	T
42	1602T		136	250	16000	▲5545	7.00/20D	8.25/20	Her QXLDF	6–3 7/16 x4 1/4	236	6.6	190	90–3200	7–2 1/2 x10	N	WG T9	4	Tim E300DPH	dF	H	6.13–8.10	Tim 30000H X	L4IHV	310	482	a	TX	60 1/2	9 1/4x3x	T
43	1801T		136	250	17500	▲5760	8.25/20D	9.00/20	Her JXBF	6–3 3/4 x4 1/4	263	6.5	192	98–3200	7–2 1/2 x10‖	N	WG T9†	4	Tim E100DPH	SF	H	** –6.20	Tim 30003H	LT41HV	314	532	a	TX	60 1/2	9 1/4x3x	T
44	1802T		136	250	17500	▲5890	8.25/20D	9.00/20	Her JXBF	6–3 3/4 x4 1/4	263	6.5	192	98–3200	7–2 1/2 x10‖	N	WG T9†	4	Tim S300DPH	SF	H	6.13–8.10	Tim 30003H	LT41HV	314	532	a	TX	60 1/2	9 1/4x3x	T
45	2501T		136	250	19000	▲6025	8.25/20D	9.00/20	Her JXCF	6–3 3/4 x4 1/4	282	6.5	212	103–3200	7–2 1/2 x10	N	WG T97†	4	Tim H100DPH	SF	R	** –6.80	Tim 3100H	LT41HV	346	583	a	TX	60 1/2	9 1/4x3x	T
46	2502T		136	250	19000	▲6105	8.25/20D	9.00/20	Her JXCF	6–3 3/4 x4 1/4	282	6.5	212	103–3200	7–2 1/2 x10	N	WG T97†	4	Tim H300DPH	dF	R	6.13–8.15	Tim 3100H	LT41HV	346	583	a	TX	60 1/2	9 1/4x3x	T
47	2901T		136	250	21500	▲6535	9.00/20D	10.00/20	Her JXDF	6–4x4 1/4	320	6.5	250	115–3100	7–2 1/2 x10‖	Y	Cla 205V‡‡	5	Tim L100DPH	SF	R	** –6.83	Tim 32514H	LT41HV	466	820	a	TX	60 1/2	9 1/4x3x	T
48	2902T		136	250	21500	▲6695	9.00/20D	10.00/20	Her JXDF	6–4x4 1/4	320	6.5	250	115–3100	7–2 1/2 x10‖	Y	Cla 205V‡‡	5	Tim L300DPH	dF	R	6.32–8.22	Tim 32514H	LT41HV	466	820	a	TX	60 1/2	9 1/4x3x	T
49	2904T		136	250	23500	▲7260	9.00/20D	10.00/20	Her JXDF	6–4x4 1/4	320	6.5	250	115–3100	7–2 1/2 x10‖	Y	Cla 205V‡‡♦	15	Tim Q-100	SF	R	** –6.83	Tim 32514H	LT41HV	524	924	a	TD	60 1/2	9 1/4x3x	T
50	3001T		136	250	22000	▲6575	9.00/20D	10.00/20	Here JXLDF	6–4x4 1/2	339	6.5	272	131–3200	7–2 1/2 x10‖	Y	Cla 205V‡‡	5	Tim L100DPH	SF	R	** –6.83	Tim 32514H	LT41HV	466	820	a	TX	60 1/2	9 1/4x3x	T
51	3002T		136	250	22000	▲6735	9.00/20D	10.00/20	Here JXLDF	6–4x4 1/2	339	6.5	272	131–3200	7–2 1/2 x10‖	Y	Cla 205V‡‡	5	Tim L300DPH	dF	R	6.32–8.22	Tim 32514H	LT41HV	466	820	a	TX	60 1/2	9 1/4x3x	T
52	3004T		136	250	24000	▲7300	9.00/20D	10.00/20	Here JXLDF	6–4x4 1/2	339	6.5	272	131–3200	7–2 1/2 x10‖	Y	Cla 205V‡‡§	15	Tim Q-100	SF	R	** –6.83	Tim 32514H	LT41HV	524	924	a	TD	60 1/2	9 1/4x3x	T
53	3401T		136	250	23000	▲7210	9.00/20D	10.00/20	Con T6371F	6–4 1/2 x4 5/8	371	6.4	297	144–3000	7–2 1/2 x13 1/2	Y	Cla 290V‡‡	5	Tim L100DPH	SF	R	**–6.83	Tim 32514H	LT41HV	466	820	a	TX	60 1/2	9 1/4x3x	T
54	3402T		136	250	23000	▲7370	9.00/20D	10.00/20	Con T6371F	6–4 1/2 x4 5/8	371	6.4	297	144–3000	7–2 1/2 x13 1/2	Y	Cla 290V‡‡	5	Tim L300DPH	dF	R	6.32–8.22	Tim 32514H	LT41HV	466	820	a	TX	60 1/2	9 1/4x3x	T
55	45M-45MA		143	203	27000	8005	10.00/20D	10.00/24	Con T6427F•	6–4 1/4 x4 1/2	427	6.4	348	166–3000	7–2 1/2 x13 1/2	Y	Cla 290V	5	Tim Q100P	SF	R	** –6.83	Tim FD-900	TW41A	606	933	a	TD	60 1/2	10 x3 1/4 x	T
56	45M2		143	203	27000	8380	10.00/20D	10.00/24	Con T6427F•	6–4 1/4 x4 1/2	427	6.4	348	166–3000	7–2 1/2 x13 1/2	Y	Cla 290V	5	Tim Q300P	dF	R	6.53–8.53	Tim FD-900	TW41A	606	933	a	TD	60 1/2	10 x3 1/4 x	T
57	55M2-55M		143	203	30000	8635	11.00/22D	11.00/24	Con T6427F•	6–4 1/4 x4 1/2	427	6.4	348	166–3000	7–2 1/2 x13 1/2	Y	Cla 290V	5	Tim S300P‡	HyF	R	6.53–8.53	Tim FD-900	Tw41A	722	1051	a	TD	60 1/2	10 x3 1/4 x	T
58	55MA		155	203	30000	8765	11.00/22D	11.00/24	Con T6427F•	6–4 1/4 x4 1/2	427	6.4	348	166–3000	7–2 1/2 x13 1/2	Y	Cla 290V♦	15	Tim S-200P	2F	R	** –7.08	Tim FD-900	TW41A	722	1051	a	TD	72 1/2	10 x3 1/4 x	T
59	60MA		155	203	32000	9600	11.00/22D	11.00/24	Con U6501F•	6–4 1/2 x5 1/4	501	6.4	414	178–2800	7–2 3/4 x14 1/2	Y	Fu 5A65§	15	Tim S200P	2F	R	** –7.08	Tim FD-900	Tw41A	722	1051	a	FX	72 1/2	10 x3 1/4 x	T
60	60M2-60M		143	203	32000	9370	11.00/22D	11.00/24	Con U6501F•	6–4 1/2 x5 1/4	501	6.4	414	178–2800	7–2 3/4 x14 1/2	Y	Fu 5A65§	5	Tim S300P‡	HyF	R	6.53–8.53	Tim FD-900	Tw41A	722	1051	a	TX	60 1/2	10 x3 1/4 x	T
61	65M2-65M		141	201	33000	9995	11.00/22D	11.00/24	Con R6602F•	6–4 1/2 x5 1/4	602	6.4	466	205–3000	7–3 1/4 x14 1/2	Y	Fu 5A65§	5	Tim S300P‡	HyF	R	6.53–8.53	Tim FE-900	Ws41A	722	1051	a	TX	60 1/2	10 x3 1/4 x	T
62	65MA		153	201	33000	10225	11.00/22D	11.00/24	Con R6602F•	6–4 1/4 x5 1/4	602	6.4	466	205–3000	7–3 1/4 x14 1/2	Y	Fu 5A65§	15	Tim S200P	HyF	R	** –7.08	Tim FE-900	Ws41A	722	1051	a	TX	72 1/2	10 x3 1/4 x	T
63	3404T		136	250	25000	▲7935	9.00/20D	10.00/20	Con T6371F	6–4 1/2 x4 5/8	371	6.5	297	144–3000	7–2 1/2 x13 1/2	Y	Cla 290V‡‡	5	Tim Q100DPH	SF	R	** –6.83	Tim 32514H	LT41HV	524	924	a	TX	60 1/2	9 1/4x3x	T
	Ford F-1																														
64	Cowl. 1HC-84		114	114	4700	2226	6.00/16-4	6.50/16-6S	Own 7HC	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 1C	3	Own 1C	H½	H	3.92–4.27	Own 8C	O4IH	178	259	Co	M2	40.06	5.92x2½x15	T
65	Cowl. 1RC-84		114	114	4700	2266	6.00/16-4	6.50/16-6S	Own 8RC	8–3 1/16 x3 1/4	239	6.8	180	100–3800	3–2.49x5.2	N	Own 1C	3	Own 1C	H½	H	3.92–4.27	Own 8C	O4IH	178	259	Co	M2	40.06	5.92x2½x15	T
	F-2																														
66	Cowl. 1HD-84		122	122	5700	2616	6.50/16-6	7.50/16-6S	Own 7HD	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 1D	SF	H	** –4.86	Own 8D	O4IH	196	302	Co	TX	48.06	6x2¼x.19	T
67	Cowl. 1RD-84		122	122	5700	2656	6.50/16-6	7.50/16-6S	Own 8RD	8–3 1/16 x3 1/4	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 1D	SF	H	** –4.86	Own 8D	O4IH	196	302	Co	TX	48.06	6x2¼x.19	T
	F-3																														
68	Cowl. 1HY-84		122	122	6800	2849	7.00/17-6S	7.50/17-8S	Own 7HY	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 1D	SF	H	** –4.86	Own 8D	O4IH	196	302	Co	TX	48.06	6x2¼x.19	T
69	Cowl. 1RY-84		122	122	6800	2889	7.00/17-6S	7.50/17-8S	Own 8RY	8–3 1/16 x3 1/4	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 1D	SF	H	** –4.86	Own 8D	O4IH	196	302	Co	TX	48.06	6x2¼x.19	T
	F-3 Parcel Dlvy.																														
70	w/s 1HJ		104	104	7800	3030	7.00/16-6S	7.50/17-8S	Own 8HJ	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 8J	3	Own 8J	SF	H	** –4.86	Own 8J	O4IH	205	316	Co	TX	82●	6x2¼x.19	T
71	w/s 1H2J		122	122	7800	3100	7.00/16-6S	7.50/17-8S	Own 8HJ	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.2	N	Own 8J	3	Own 8J	SF	H	** –4.86	Own 8J	O4IH	205	316	Co	TX	100●	6x2¼x.19	T
	F-4																														
72	Cowl. 1HT1-84		134	134	10000	3457	7.00/20-8S	7.00/18-8	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–5.83	Own 7RT	O4IH	302	506	Co	TX	60.06	7x2¼x.21	T
73	Cowl. 1RT1-84		134	134	10000	3497	7.00/20-8S	7.00/18-8	Own 8RT	8–3 1/16 x3 1/4	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–5.83	Own 7RT	O4IH	302	506	Co	TX	60.06	7x2¼x.21	T

(Turn to Page 88, Please)

For Key to References and Abbreviations See Page 81.



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Cherry Rivets are easy to install, strong, and foolproof at the highly stressed section where roof bows are Cherry Riveted to the quarter panel in closed Trailmobile units.

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(Continued from Page 86)

Line Number	MAKE AND MODEL	Chassis List Price	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	Forward Speeds	REAR AXLE: Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	Type
	Ford—Cont'd																														
	F-5																														
1	Cowl....1HT-84	.....	134	134	14000	3646	6.50/20-6	7.50/20-8	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	60.06	7x2¾x.21	T
2	Cowl....1RT-84	.....	134	134	14000	3686	6.50/20-6	7.50/20-8	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	60.06	7x2¾x.21	T
3	Cowl....1H8T-84	.....	158	158	14000	3796	6.50/20-6	7.50/20-8	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	84.06	7x2¾x.21	TL
4	Cowl....1R8T-84	.....	158	158	14000	3836	6.50/20-6	7.50/20-8	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	84.06	7–2¾x.21	TL
5	Cowl....1H6T-84	.....	176	176	14000	3926	6.50/20-6	7.50/20-8	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	102.3	7.08x2.79x¼	TL●
6	Cowl....1R6T-84	.....	176	176	14000	3966	6.50/20-6	7.50/20-8	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	102.3	7.08x2.79x¼	TL●
	F-5 C.O.E.																														
7	Cab...1HOW-81	.....	110	110	14000	4346	6.50/20-6	7.50/20-8	Own 8HW	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	60.06	7x2¾x.21●	TL
8	Cab...1ROW-81	.....	110	110	14000	4386	6.50/20-6	7.50/20-8	Own 8RW	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	60.06	7x2¾x.21●	TL
9	Cab....1HW-81	.....	134	134	14000	4476	6.50/20-6	7.50/20-8	Own 8HW	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	84.06	7.08x2.8x¼●	TL
10	Cab....1RW-81	.....	134	134	14000	4516	6.50/20-6	7.50/20-8	Own 8RW	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	84.06	7.08x2.8x¼●	TL
11	Cab...1H8W-81	.....	158	158	14000	4546	6.50/20-6	7.50/20-8	Own 8HW	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	108.1	7.08x2.8x¼●	TL
12	Cab...1R8W-81	.....	158	158	14000	4586	6.50/20-6	7.50/20-8	Own 8RW	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	108.1	7.08x2.8x¼●	TL
	F-5 School Bus																														
13	Bus Cl..1H8T-84	.....	158	158	12000	3755	6.50/20-6	7.50x20	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RTH	O4IH	302	506	Co	TX	128¶	7x2¼x.21●	TL
14	Bus Cl..1R8T-84	.....	158	158	12000	3795	6.50/20-6	7.50x20	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RTH	O4IH	302	506	Co	TX	128¶	7x2¼x.21●	TL
	F-6 School Bus																														
15	Bus Cl..1H4T-84	.....	194	194	15000	4260	7.50/20-8	8.25/20-10	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RTH	O4IHV	302	506	Co	TX	164¶	7.08x2.8x¼●	TL
16	Bus Cl..1R4T-84	.....	194	194	15000	4300	7.50/20-8	8.25/20-10	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–5.67	Own 7RTH	O4IHV	302	506	Co	TX	164¶	7.08x2.8x¼●	TL
	F-6																														
17	Cowl..1HTH-84	.....	134	134	16000	3980	7.50/20-8	8.25/20-10	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	60.06	7.08x2.8x¼●	TL
18	Cowl..1RTH-84	.....	134	134	16000	4020	7.50/20-8	8.25/20-10	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	60.06	7.08x2.8x¼●	TL
19	Cowl..1MTH-84	.....	134	134	16000	4165	7.50/20-8	8.25/20-10	Own 8MTH	6–3.5x4.4	254	6.8	212	110–3400	4–2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	60.06	7.08x2.8x¼●	TL
20	Cowl..1H8TH-84	.....	158	158	16000	4050	7.50/20-8	8.25/20-10	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¼●	TL
21	Cowl..1R8TH-84	.....	158	158	16000	4090	7.50/20-8	8.25/20-10	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¼●	TL
22	Cowl..1M8TH-84	.....	158	158	16000	4235	7.50/20-8	8.25/20-10	Own 8MTH	6–3.5x4.4	254	6.8	212	110–3400	4–2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¼●	TL
23	Cowl..1H6TH-84	.....	176	176	16000	4130	7.50/20-8	8.25/20-10	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	102.3	7.08x2.8x¼●	TL
24	Cowl..1R6TH-84	.....	176	176	16000	4170	7.50/20-8	8.25/20-10	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	102.3	7.08x2.8x¼●	TL
25	Cowl.1M6TH-84	.....	176	176	16000	4315	7.50/20-8	8.25/20-10	Own 8MTH	6–3.5x4.4	254	6.8	212	110–3400	4–2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	102.3	7.08x2.8x¼●	TL
	F-6 C.O.E.																														
26	Cab.1HOWH-81	.....	110	110	16000	4549	7.50/20-8	8.25/20-10	Own 8HW	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	60.06	7x2¾x.21●	TL
27	Cab.1ROWH-81	.....	110	110	16000	4589	7.50/20-8	8.25/20-10	Own 8RW	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	60.06	7x2¾x.21●	TL
28	Cab.1MOWH-81	.....	110	110	16000	4574	7.50/20-8	8.25/20-10	Own 8MWH	6–3.5x4.4	254	6.8	210	106–3400	4–2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	60.06	7x2¾x.21●	TL
29	Cab...1HWH-81	.....	134	134	16000	4679	7.50/20-8	8.25/20-10	Own 8HW	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¼●	TL
30	Cab...1RWH-81	.....	134	134	16000	4719	7.50/20-8	8.25/20-10	Own 8RW	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¼●	TL
31	Cab..1MWH-81	.....	134	134	16000	4704	7.50/20-8	8.25/20-10	Own 8MWH	6–3.5x4.4	254	6.8	210	106–3400	4–2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¼●	TL
32	Cab..1H8WH-81	.....	158	158	16000	4749	7.50/20-8	8.25/20-10	Own 8HW	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	108.1	7.08x2.8x¼●	TL
33	Cab..1R8WH-81	.....	158	158	16000	4789	7.50/20-8	8.25/20-10	Own 8RW	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	108.1	7.08x2.8x¼●	TL
34	Cab..1M8WH-81	.....	158	158	16000	4774	7.50/20-8	8.25/20-10	Own 8MWH	6–3.5x4.4	254	6.8	210	106–3400	4–2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	108.1	7.08x2.8x¼●	TL
	F-7																														
35	Cowl... 1EQ-84	.....	135	135	19000	5478	8.25/20-10	9.00/20-10	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQ	5	Own 8Q	Hy	H	** –6.8	Own 7EQ	O4IHV	444	697	Co	TX	61.06	9x3x.25†	TL
36	Cowl...1E7Q-84	.....	147	147	19000	5528	8.25/20-10	9.00/20-10	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQ	5	Own 8Q	Hy	H	** –6.8	Own 7EQ	O4IHV	444	697	Co	TX	73.06	9x3x.25†	TL
37	Cowl...1E9Q-84	.....	159	159	19000	5648	8.25/20-10	9.00/20-10	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQ	5	Own 8Q	Hy	H	** –6.8	Own 7EQ	O4IHV	444	697	Co	TX	85.06	9x3x.25†	TL
38	Cowl...1E8Q-84	.....	178	178	19000	5748	8.25/20-10	9.00/20-10	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQ	5	Own 8Q	Hy	H	** –6.8	Own 7EQ	O4IHV	444	697	Co	TX	104.1	9x3x.25†	TL
39	Cowl...1E5Q-84	.....	195	195	19000	5808	8.25/20-10	9.00/20-10	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQ	5	Own 8Q	Hy	H	** –6.8	Own 7EQ	O4IHV	444	697	Co	TX	121.1	9x3x.25†	TL
	F-8																														
40	Cowl...1EQH-84	.....	135	135	22000	5934	9.00/20-10	10.0/20-12	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQH	5	Own 8QH	SF	H	** –7.17	Own 7EQ	O4IHV■	485	729	C	TX	61.06	9x3x.25†	TL
41	Cowl..1E7QH-84	.....	147	147	22000	5984	9.00/20-10	10.0/20-12	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQH	5	Own 8QH	SF	H	** –7.17	Own 7EQ	O4IHV■	485	729	C	TX	73.06	9x3x.25†	TL
42	Cowl..1E9QH-84	.....	159	159	22000	6224	9.00/20-10	10.0/20-12	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQH	5	Own 8QH	SF	H	** –7.17	Own 7EQ	O4IHV■	485	729	C	TX	85.06	9x3x.25†	TL
43	Cowl..1E8QH-84	.....	178	178	22000	6124	9.00/20-10	10.0/20-12	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQH	5	Own 8QH	SF	H	** –7.17	Own 7EQ	O4IHV■	485	729	C	TX	104.1	9x3x.25†	TL
44	Cowl..1E5QH-84	.....	195	195	22000	6284	9.00/20-10	10.0/20-12	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQH	5	Own 8QH	SF	H	** –7.17	Own 7EQ	O4IHV■	485	729	C	TX	121.1	9x3x.25†	TL
45	Kenworth(D)..521	.....	165	255	28000	12000	10.00/20	11.00/22	Cum HB6	6–4¼x6	672	17	500	150–1800	7–4½x16	Y	BL 8241	4	Tim U200P	H2F	H	5.91–9.76	TimFe900DPA	Ws4IA	722	1174	a	TD	74	9½x3½x	C
46	585	.....	165	255	28000	9600	10.00/20	11.00/22	Wau 140GZ	6–4½x5½	554	6.4	450	188–2600	7–3x13	Y	Fu 5C650	5	Tim R100P	HF	H	5.29–7.60	TimFe900DPA	Ws4IA	648	1168	a	TD	64	9½x3½x	C
47	Linn.....A-15	.....	120	....	9000	6000	7.50/20S	8.25/20S	Her JXE3	6–3½x4¼	245	6.5	184	91–3200	7–2½x10	Y	WGT9	4	Own 601	N	N	None	Tim F30B28H	L4IH	306	478	a	T	.....	None	....
48	.....A-25	.....	156	....	11200	6200	7.50/20S	8.25/20	Her JXE3	6–3½x4¼	245	6.5	184	91–3200	7–2½x10	Y	WGT9	4	Own 601	N	N	None	Tim F30B28H	L4IH	306	478	a	X	.....	None	....
49	.....A-35	.....	169	....	14700	7900	7.50/20D	8.25/20	Her JXC	6–3¾x4¼	282	6.7	207	103–3200	7–2½x10	Y	WGT9	4	Own 602T	N	N	None	Tim F35	L6IH	486	744	a	X	.....	None	....
50	.....A-45	.....	205	....	16900	8100	7.50/20D	8.25/20	Her JXC	6–3¾x4¼	282	6.7	207	103–3200	7–2½x10	Y	WGT9	4	Own 602T	N	N	None	Tim F35	L6IH	486	744	a	X	.....	None	....
51	Mar. Her...DVL-4	.....	90	118	6750	.....	7.50/16S	8.25/18S	Willys MB	4–3½x4½	134	6.4	105	60–4000	3–2.33x5.48	Y	Own	3	(Front Drive)	.....	.....	7.10	Own	4IH	202	327	M2	.....	.....	None	....
52	Peterbilt(D)...280	.....	175	Opt	27000	12500	10.00/20D	11.00/22	Cum HB600	6–4½x6	672	17	500	150–1800	7–4½x16½	Y	Spi 8041	12	U-200P	2F	R	** –6.51	TimFe900DPA	Ws4IA	738	1052	...	TD	86½	10½x3½x	CT
53	Reo.....F-20A	.....	125	125	16000	4785	7.50/20	8.25/20	Own 255	6–3⅝x4½	255	6.7	189	107–3400	7–2½x9.408	Y	WG-T98	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	534	var	TX	60½	8½x2½x	T
54	.....F-20T	.....	125	125	16000	5215	8.25/20	8.25/20	Own 255	6–3⅝x4½	255	6.7	189	107–3400	7–2½x9.408	Y	WG T98	4	Tim E300	Hfd	H	6 13/8.10	Tim 30000	LT4IVH	340	534	var	TX	60½	8½x2½x	T
55	.....F-20B	.....	150	150	16000	4925	7.50/20	8.25/20	Own 255	6–3⅝x4½	255	6.7	189	107–3400	7–2½x9.408	Y	WG T98	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	534	var	TX	85½	8½x2½x	T
56	.....F-20C	.....	170	170	16000	5060	7.50/20	8.25/20	Own 255	6–3⅝x4½	255	6.7	189	107–3400	7–2½x9.408	Y	WG T98	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	534	var	TX	105½	8½x2½x	Tf
57	.....F-20L	.....	185	185	16000	5185	7.50/20	8.25/20	Own 255	6–3⅝x4½	255	6.7	189	107–3400	7–2½x9.408	Y	WG T98	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	534	var	TX	120½	9x3x¼	Tf
58	.....F-21A	.....	130	130	18000	5110	8.25/20	9.00/20	Own 255	6–3⅝x4½	255	6.7	189	107–3400	7–2½x9.408	Y	WG T98	4	Tim E100♦	HF	H	5.28–6.8	Tim 31104	LT4IVH	344	584	var	TX	65½	9x3x¼	T
59	.....F21T	.....	130	130	18000	5535	8.25/20	9.00/20	Own 255	6–3⅝x4½	255	6.7	189	107–3400	7–2½x9.408	Y	WG T98	4	Tim E300	HFd	H	6 13/8.10	Tim 31104	LT4IVH	344	584	var	TX	65½	9x3x¼	T
60	.....F-21B	.....	150	150	18000	5325	8.25/20	9.00/20	Own 255	6–3⅝x4½	255	6.7	189	107–3400	7–2½x9.408	Y	WG T98	4	Tim E100♦	HF	H	5.28–6.8	Tim 31104	LT4IVH	344	584	var	TX	85½	9x3x¼	T
61	.....F-21C	.....	170	170	18000	5460	8.25/20	9.00/20	Own 255	6–3⅝x4½	255	6.7	189	107–3400	7–2½x9.408	Y	WG T98	4	Tim E100♦	HF	H	5.28–6.8	Tim 31104	LT4IVH	344	584	var	TX	105½	9x3x¼	Tf
62	.....F-21L	.....	185	185	18000	5555	8.25/20	9.00/20	Own 255	6–3⅝x4½	255	6.7	189	107–3400	7–2½x9.408	Y	WG T98	4	Tim E100♦	HF	H	5.28–6.8	Tim 31104	LT4IVH	344	584	var	TX	120½	9x3x	Tf
63	.....F-22A	.....	130	130	20000	5840	9.00/20	10.00/20	Own 292♣	6–3⅞x4½	292	6.5	224	124–3300	7–2½x9.408	Y	Cla 205V	5	Tim H100^	HF	H	6.16–6.8	Tim 31104	LT4IVH	370	640	var	TX	65½	9x3x¼	T
64	.....F-22T	.....	130	130	20000	6415	9.00/20	10.00/20	Own 292♣	6–3⅞x4½	292	6.5	224	124–3300	7–2½x9.408	Y	Cla 205V	5	Tim H300^	Hfd	H	6.67/8.85	Tim 31104	LT4IVH	370	640	var	TX	65½	9x3x¼	T
65	.....F-22B	.....	150	150	20000	6005	9.00/20	10.00/20	Own 292♣	6–3⅞x4½	292	6.5	224	124–3300	7–2½x9.408	Y	Cla 205V	5	Tim H100^	HF	H	6.16–6.8	Tim 31104	LT4IVH	370	640	var	TX	85½	9x3x¼	T
66	.....F-22C	.....	170	170	20000	6140	9.00/20	10.00/20	Own 292♣	6–3⅞x4½	292	6.5	224	124–3300	7–2½x9.408	Y	Cla 205V	5	Tim H100^	HF	H	6.16–6.8	Tim 31104	LT4IVH	370	640	var	TX	105½	9x3x¼	Tf
67	.....F-22L	.....	185	185	20000	6275	9.00/20	10.00/20	Own 292♣	6–3⅞x4½	292	6.5	224	124–3300	7–2½x9.408	Y	Cla 205V	5	Tim H100^	HF	H	6.16–6.8	Tim 31104	LT4IVH	370	640	var	TX	120½	9¼x3 x	Tf
68	.....F-22RA	.....	130	130	22000	6420	10.00/20	10.00/22	Own 331	6–4¼x4½	331	6.4	264	140–3200	7–2½x9.408	Y	Cla 205V	5	Tim L100^	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	748	var	TX	65½	9x3x¼	T
69	.....F-22RT	.....	130	130	22000	6880	10.00/20	10.00/22	Own 331	6–4¼x4½	331	6.4	264	140–3200	7–2½x9.408	Y	Cla 205V	5	Tim L300^	HFd	H	6.36/8.28	Tim 32500	LT4IVH	422	748	var	TX	65½	9x3x¼	T
70	.....F-22RB	.....	150	150	22000	6565	10.00/20	10.00/22	Own 331	6–4¼x4½	331	6.4	264	140–3200	7–2½x9.408	Y	Cla 205V	5	Tim L100^	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	748	var	TX	85½	9x3x¼	T

(Turn to Page 90, Please)

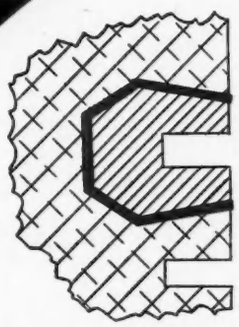
For Key to References and Abbreviations See Page 81.

now you can get the new

GROOVE GUARD

in heavy-duty pistons of

ALCOA LO-EX ALLOY



METALLIC-BONDED IRON INSERT MINIMIZES TOP GROOVE WEAR

If you have ring groove wear in heavy-duty aluminum alloy pistons, Alcoa has the answer—the new *Groove Guard!*

This special iron insert is cast right into the aluminum piston, and is held firmly in place by a solid metallic bond and its own keystone shape. It helps to maintain proper clearances at high temperatures. Stops waste of fuel and compression that can result from worn grooves.

Now, add the Groove Guard to other advantages you get with pistons of ALCOA LO-EX ALLOY—light weight, high strength, low expansion, fast heat transfer. Rearmament needs may restrict availability of aluminum pistons, but ask your piston supplier about this important new development and its availability. Or write ALUMINUM COMPANY OF AMERICA, 1847M Gulf Building, Pittsburgh 19, Pennsylvania.

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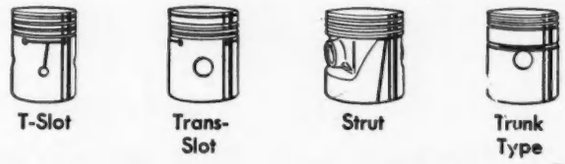

MORE HAUL PER OVERHAUL!

(Continued from Page 88)

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE: Minimum Standard	WHEEL-BASE: Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES (D-dual rear S-single rear): Standard Front and Rear	TIRE SIZES: Maximum Approved Tire Sizes (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number	Main Bearings: Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	TRANSMISSION: Forward Speeds	REAR AXLE: Make and Model	REAR AXLE: Gear and Type	REAR AXLE: Drive & Torque	REAR AXLE: Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES: SERVICE: Make Location Type Operation	BRAKES: SERVICE: Lining Area	BRAKES: SERVICE: Drum Area	BRAKES: SERVICE: Drum Material	BRAKES: Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	FRAME: Type
	Reo—Cont'd																															
1	F-22RC		170	170	22000	6680	10.00/20	10.00/22	Own 331	6–4½x4½	331	6.4	264	140–3200	7	2½x9.408	Y	Cla 205V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	748	var	TX	105½	9x3x¼	Tf
2	F-22RL		185	185	22000	6805	10.00/20	10.00/22	Own 331	6–4½x4½	331	6.4	264	140–3200	7	2½x9.408	Y	Cla 205V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	748	var	TX	120½	9¼x3☆x☆	Tf
3	F-22SA		130	130	24000	7305	10.00/20	11.00/20	Own 331	6–4½x4½	331	6.4	264	140–3200	7	2½x9.408	Y	Cla 205V	5	Tim Q100△	HF	H	6.16–6.83	Tim FD900	TWs4IA	620	928	var	TX	65½	9½x3☆x☆	T
4	F-22ST		130	130	24000	7765	10.00/20	11.00/20	Own 331	6–4½x4½	331	6.4	264	140–3200	7	2½x9.408	Y	Cla 205V	5	Tim Q300△	HFd	H	6.42/8.38	Tim FD900	TWs4IA	620	928	var	TX	65½	9½x3☆x☆	T
5	F-22SB		150	150	24000	7485	10.00/20	11.00/20	Own 331	6–4½x4½	331	6.4	264	140–3200	7	2½x9.408	Y	Cla 205V	5	Tim Q100△	HF	H	6.16–6.83	Tim FD900	TWs4IA	620	928	var	TX	85½	9½x3☆x☆	T
6	F-22SC		170	170	24000	7670	10.00/20	11.00/20	Own 331	6–4½x4½	331	6.4	264	140–3200	7	2½x9.408	Y	Cla 205V	5	Tim Q100△	HF	H	6.16–6.83	Tim FD900	TWs4IA	620	928	var	TX	105½	9½x3☆x☆	Tf
7	F-22SL		185	185	24000	7825	10.00/20	11.00/20	Own 331	6–4½x4½	331	6.4	264	140–3200	7	2½x9.408	Y	Cla 205V	5	Tim Q100△	HF	H	6.16–6.83	Tim FD900	TWs4IA	620	928	var	TX	120½	9½x3☆x☆	Tf
8	F-23A		130	130	26000	7695	10.00/20	11.00/22	Con T6427	6–4¾x4⅞	427	6.4	348	151–2800	7	2⅛x12.1	Y	Cla 290V	5	Tim Q100△	HF	H	6.16–6.83	Tim FD900	TWs4IA	620	928	var	TX	65½	9½x3☆x☆	T
9	F-23T		130	130	26000	8155	10.00/20	11.00/22	Con T6427	6–4¾x4⅞	427	6.4	348	151–2800	7	2⅛x12.1	Y	Cla 290V	5	Tim Q300△	HF	H	6.42/8.38	Tim FD900	TWs4IA	620	928	var	TX	65½	9½x3☆x☆	T
10	F-23B		150	150	26000	7865	10.00/20	11.00/22	Con T6427	6–4¾x4⅞	427	6.4	348	151–2800	7	2⅛x12.1	Y	Cla 290V	5	Tim Q100△	HF	H	6.16–6.83	Tim FD900	TWs4IA	620	928	var	TX	85½	9½x3☆x☆	T
11	F-23C		170	170	26000	8035	10.00/20	11.00/22	Con T6427	6–4¾x4⅞	427	6.4	348	151–2800	7	2⅛x12.1	Y	Cla 290V	5	Tim Q100△	HF	H	6.16–6.83	Tim FD900	TWs4IA	620	928	var	TX	105½	9½x3☆x☆	Tf
12	F-23L		185	185	26000	8195	10.00/20	11.00/22	Con T6427	6–4¾x4⅞	427	6.4	348	151–2800	7	2⅛x12.1	Y	Cla 290V	5	Tim Q100△	HF	H	6.16–6.83	Tim FD900	TWs4IA	620	928	var	TX	120½	9½x3☆x☆	Tf
	Sterling																															
13	▼▼(T)..TB1301T		143	153	26000	▲10375	10.00/20	11.00/22	Wau 140GKB▼▼	6–4½x5½	525	6.4	425	172–2700	7	3¼x15½	Y	Fu 5A620	5	Tim R100P	FHy	R	3.70–7.40	T FD900DPA	Ws4IA	560	930	A	TX	67	‡‡	A
14	▼▼(T)..TB1501T		143	153	30000	▲11100	11.00/20	12.00/24†	Wau 140GZB▼▼	6–4½x5½	555	6.4	450	183–2600	7	3¼x15½	Y	Fu 5C650	5	Tim U200P	2F	R	5.91–9.76	T FE900DPA	Ws4IA	622	1034	A	TX	67	9x3¼x¼	A
15	(D)(T)TA1501TD		173	181	30000	▲13125	10.00/20	10.00/22	Cum NHB600	6–5½x6	743	15.5	537	200–2100	7	4½x13½	Y	Fu4A86–3B65	12	Tim S200P	2F	R	5.91–9.76	Tim FE900DP	Ws4IA	622	1034	A	TX♦	77	‡‡	A
16	(D)(T)TA1511TD		173	181	30000	▲13250	11.00/20	11.00/22	Cum NHB600	6–5½x6	743	15.5	537	200–2100	7	4½x13½	Y	Fu4A86–3B65	12	Tim S200P	2F	R	5.91–9.76	Tim FE900DP	Ws4IA	622	1034	A	TX♦	77	‡‡	A
17	(D)...TA1601D		173	231	32000	▲13650	10.00/20	10.00/22	Cum NHB600	6–5½x6	743	15.5	537	200–2100	7	4½x13½	Y	Fu4A86–3A92	12	Tim U200P	2F	R	5.91–9.76	T FE900DPA	Ws4IA	622	1034	A	TX♦	77	9x3½x¼	A
18	(D)...TA1611D		173	231	32000	▲13775	11.00/20	11.00/22	Cum NHB600	6–5½x6	743	15.5	537	200–2100	7	4½x13½	Y	Fu4A86–3A92	12	Tim U200P	2F	R	5.91–9.76	T FE900DPA	Ws4IA	622	1034	A	TX♦	77	9x3¼x¼	A
19	HA1101		148	215	22000	▲ 8825	9.00/20	10.00/20	Wau 6MZA	6–4¼x4¾	404	5.6	290	130–3000	7	2⅜x12½	Y	Fu 5A43	5	Tim L100DPH	FHy	R	4.11–7.20	Tim 32502H	T4IHV	374	646	A	TX	67	‡‡	A
20	HA1401		148	215	28000	▲10050	10.00/20	12.00/20‡	Wau 6MZA	6–4¼x4¾	404	5.6	290	130–3000	7	2⅜x12½	Y	Fu 5A43	5	Tim R200P	2F	R	5.91–10.2	T FD900DPA	Ws4IA	580	930	A	TX	67	9x3¼x¼	A
21	HA1601		148	215	32000	▲10825	10.00/20	11.00/24	Wau 6SRKR	6–4½x5½	517	5.5	369	125–2250	7	3x13¾	Y	Fu 5A62	5	Tim S200P	2F	R	5.91–9.76	T FD900DPA	Ws4IA	622	1034	A	TX	67	9x3¼x¼	A
22	HA1701		148	215	34000	▲11225	11.00/20	12.00/24†	Wau 6SRKR	6–4½x5½	517	5.5	369	125–2250	7	3x13¾	Y	Fu 5A62	5	Tim U200P	2F	R	5.91–9.76	T FE900DPA	Ws4IA	622	1034	A	TX	67	9¼x3½x3½	A
23	HB2001		143	211	40000	▲12800	11.00/24	12.00/24	Wau 140GKB	6–4½x5½	525	6.4	425	172–2700	7	3¼x15½	Y	Fu5A62–3A65	15	Tim 79721	2F	R	7.69–11.3	T FE900DPA	Ws4IA	642	1098	A	TX♦	67	9¼x3½x3½	A
24	(D)...HB2001D		153	211	40000	▲14150	11.00/24	12.00/24	Cum HBD600	6–4⅞x6	672	17.4	495	150–1800	7	4½x13½	Y	Fu4A86–3A92	12	Tim 79721	2F	R	7.69–11.3	T FE900DPA	Ws4IA	642	1098	A	TX♦	77	9¼x3½x3½	A
25	HA1502		148	215	30000	▲10200	10.00/20	12.00/20‡	Wau 6MZA	6–4¼x4¾	404	5.6	290	130–3000	7	2⅜x12½	Y	Fu 5A43●	15	Own 1435W	CD	R	6.70–10.8	T FD900DPA	Ws4IA	640	1044	A	JX	67	9x3¼x¼	A
26	HA1802		148	215	36000	▲11800	11.00/22	12.00/24	Wau 6SRKR	6–4½x5½	517	5.5	369	125–2250	7	3x13¾	Y	Fu 5A62●	15	Own 1445W	CD	R	6.70–10.8	T FE900DPA	Ws4IA	680	1082	A	JX	67	9¼x3½x3½	A
27	HA1803		148	215	36000	▲12100	11.00/22	11.00/24	Wau 6SRKR	6–4½x5½	517	5.5	369	125–2250	7	3x13¾	Y	Fu 5A62●	15	Own 139W	CD	R	6.70–10.8	T FE900DPA	Ws4IA	680	1082	A	JX	67	9¼x3½x3½	A
28	HA1813		148	215	36000	▲12450	11.00/22	12.00/24	Wau 6SRKR	6–4½x5½	517	5.5	369	125–2250	7	3x13¾	Y	Fu 5A62●	15	Own 155W	CD	R	6.70–10.8	T FE900DPA	Ws4IA	680	1082	A	JX	67	9¼x3½x3½	A
29	HB2002		143	211	40000	▲12850	11.00/24	12.00/24	Wau 140GKB	6–4½x5½	525	6.4	425	172–2700	7	3¼x15½	Y	Fu 5A62●	15	Own 160W	CD	R	5.56–9.26	T FE900DPA	Ws4IA	680	1082	A	JX	67	9¼x3½x3½	A
30	(D)...HB2002D		153	211	40000	▲14100	11.00/24	12.00/24	Cum HBD600	6–4⅞x6	672	17.4	495	150–1800	7	4½x13½	Y	Fu 4A86††	12	Own 160W	CD	R	7.31–12.4	T FE900DPA	Ws4IA	680	1082	A	JX	77	9¼x3½x3½	A
31	HB2003		143	211	40000	▲13150	11.00/24	12.00/24	Wau 140GKB	6–4½x5½	525	6.4	425	172–2700	7	3¼x15½	Y	Fu 5A62●	15	Own 155W	CD	R	5.56–9.26	T FE900DPA	Ws4IA	680	1082	A	JX	67	9¼x3½x3½	A
32	(D)...HB2003D		153	211	40000	▲14400	11.00/24	12.00/24	Cum HBD600	6–4⅞x6	672	17.4	495	150–1800	7	4½x13½	Y	Fu 4A86††	12	Own 155W	CD	R	7.31–12.4	T FE900DPA	Ws4IA	680	1082	A	JX	77	9¼x3½x3½	A
33	HB2013		143	211	40000	▲13400	11.00/24	12.00/24	Wau 140GKB	6–4½x5½	525	6.4	425	172–2700	7	3¼x15½	Y	Fu 5A62●	15	Own 155W	CD	R	5.56–9.26	T FE900DPA	Ws4IA	680	1082	A	JX	67	9¼x3½x3½	A
34	(D)...HB2013D		153	211	40000	▲14650	11.00/24	12.00/24	Cum HBD600	6–4⅞x6	672	17.4	495	150–1800	7	4½x13½	Y	Fu 4A86††	12	Own 155W	CD	R	7.31–12.4	T FE900DPA	Ws4IA	680	1082	A	JX	77	9¼x3½x3½	A
35	(D)...HB2503D		153	211	50000	▲15850	12.00/24†	14.00/24▼	Cum HBD600	6–4⅞x6	672	17.4	495	150–1800	7	4½x13½	Y	Fu 4A86††	12	Own 177W	CD	R	7.31–12.4	Tim 27462W	Ws4IA	786	1212	A	JX	77	9¼x3½x3½	AL
36	Studebaker....2R5		112	112	4600	2125	6.00/16S	6.50/16S	Own 1R	6–3x4	170	7.0	138	85–4000	4	2⅛x5☆	N	Own 673519	3	Own 680233	Hy	H	4.89–4.09	Own 678860	Wg4IH	170	276	CO	2I	40	7x2¼x½	T
37	2R6		112	112	4600	2365	6.00/16S	6.50/16S	Own 6R	6–3⅜x4¾	245	7.0	205	102–3200	4	2⅛x5	N	Own 679807	3	Own 680233	Hy	H	4.09–4.89	Own 678860	Wg4IH	170	276	CO	2I	40	7x2¼x½	T
38	2R10		122	122	6100	2640	6.50/16S	7.50/16S	Own 1R	6–3x4	170	7.0	138	85–4000	4	2⅛x5☆	N	Own 673519	3	Own 679819	SF	H	5.57–4.86	Own 678860	Wg4IH	198	314	CO	2I	50	7☆x2☆x☆	T
39	2R11		122	122	6100	2640	6.50/16S	7.50/16S	Own 6R	6–3⅜x4¾	245	7.0	205	102–3200	4	2⅛x5	N	Own 679146	3	Own 679818	SF	H	** –4.86	Own 678860	Wg4IH	198	314	CO	2I	50	7☆x2☆x☆	T
40	2R14–21		121	121	7800	3245	7.00/17S	7.00/20	Own 6R	6–3⅜x4¾	245	7.0	205	102–3200	4	2⅛x5	N	Own 680438	4	Own 680404	SF	H	5.83–6.66	Own 677091	Wg4IH	226	342	Ce	TX	50½	8x2½x☆	T
41	2R15–21		121	121	7800	3005	7.00/17S	7.00/20	Own 2R	6–3x4	170	7.0	138	85–4000	4	2⅛x5☆	N	Own 680437	4	Own 680404	SF	H	5.83–6.66	Own 677091	Wg4IH	226	342	Ce	TX	50½	8x2½x☆	T
42	2R15–31		131	131	10000	3065	7.00/17S	7.00/20	Own 2R	6–3x4	170	7.0	138	85–4000	4	2⅛x5☆	N	Own 680437	4	Own 680404	SF	H	5.83–6.66	Own 677091	Wg4IH	226	342	Ce	TX	60¼	8☆x2¾x☆	T
43	2R16A		131	195	14000	3695	6.50/20D	8.25/20	Own 4R	6–3⅜x4¾	245	7.0	205	102–3200	4	2⅛x5	N	Own 680438	4	Own 680399♣	SF	H	6.66–5.83	Own 674484	Wg4IH	294	442	Ce	TX	60¼	8½x2¾x☆	T
44	2R16B		131	195	15000	3695	6.50/20D	8.25/20	Own 4R	6–3⅜x4¾	245	7.0	205	102–3200	4	2⅛x5	N	Own 680438	4	Own 680399♣	SF	H	6.66–5.83	Own 674484	Wg4IH	294	442	Ce	TX	60¼	8½x2¾x☆	T
45	2R17A		131	195	16000	4180	7.50/20D	9.00/20	Own 4R	6–3⅜x4¾	245	7.0	205	102–3200	4	2⅛x5	Y	Own 680439	4	Own 680405♦♦	Hy	H	6.80–6.20	Own 674484	Wg4IH	367	553	Ce	TX	60¼	8½x2¾x☆	P
46	2R17B		131	195	17000	4180	7.50/20D	9.00/20	Own 4R	6–3⅜x4¾	245	7.0	205	102–3200	4	2⅛x5	Y	Own 680439	4	Own 680405♦♦	Hy	H	6.80–6.20	Own 674484	Wg4IH	367	553	Ce	TX	60¼	8½x2¾x☆	P
47	Ward La Fr...D-1		149	220	25000	▲ 9500	10.00/20	11.00/20	Con T6427	6–4¾x4⅞	427	5.1	340	152–2600	7	2⅛x13½	Y	Ful 5A430	5	Tim Q-100	B	R	**–6.83	Tim 35017TW	Ws4A	600	928	C	TM	68¼	9¼x3x¼	T
48	D-1C		149	220	29000	▲ 9500	11.00/20	11.00/22	Con T6427	6–4¾x4⅞	427	5.1	340	152–2600	7	2⅛x13½	Y	Ful 5A430	5	Tim S-200	S2	R	**–7.08	Tim 35017TW	Ws4A	673	1031	C	TM	68¼	9¼x3x¼	T
49	D-2K		149	220	29000	▲10000	11.00/20	11.00/22	Wau 140GK	6–4½x5½	525	6.4	425	168–2400	7	2⅝x13½	Y	Ful 5A620	5	Tim S-200	S2	R	**–7.84	Tim 35017TW	Ws4A	673	1031	C	TM	68¼	10x3½x☆	T
50	D-2Z		149	220	29000	▲10000	11.00/20	11.00/22	Wau 140GZ	6–4½x5½	554	6.4	456	184–2400	7	3¼x13½	Y	Ful 5C650	5	Tim S-200	S2	R	**–7.84	Tim 35017TW	Ws4A	673	1031	C	TM	68¼	10x3½x☆	T
51	D-3		149	220	29000	▲10000	11.00/20	11.00/22	Con R6572	6–4¾x5½	572	5.9	440	189–2600	7	3¼x14½	Y	Ful 5C650	5	Tim S-200	S2	R	**–7.84	Tim 35017TW	Ws4B	673	1031	C	TM	68¼	10x3½x☆	T
52	D-3S		149	220	29000	▲10000	11.00/20	11.00/22	Con R6602	6–4⅞x5½	602	5.9	463	198–2600	7	3¾x14½	Y	Ful 5C650	5	Tim S-200	S2	R	**–7.84	Tim 35017TW	Ws4B	673	1031	C	TM	68¼	10x3½x☆	T
53	(D)...D-5		149	220	35000	▲12500	11.00/22	11.00/22	Cum HB600	6–4½x6	672	17	500	150–1800	7	4½x16¾	Y	Ful 5C650	5	Tim U-200	S2	R	**–6.42	Tim 27463	Ws4B	681	1041	C	TM	68¼	10x3½x☆	T
	White-Freightliner																															
54	(c.o.e.)...WF 42		112	120	.....	▲11400	10.00/22	.....	Cum NHB	6–5½x6	743	13.5	575	200–2100	7	4½x16½	Y	Fu 4A86	8	Eat 22501	SFd	H	4.33–6.67	Tim 27061	O4IA	645	1050	a	TD	72	10½x3½x¼	DL
55	Willys Sd. Dv..473	*1390	104	104	4000	*2620	6.50/15S	.....	Own 473	4–3½x4⅛	134	7.4	114	72–4000	3	2.33x5.48	N	WG T96	3	Spi 23–1	Hy	H	** –4.88	Own I Tr	B4IH	133	220	a	2I	.....	5x2¼x.063	TfD
	Four-Wheel-Drive																															
56	Coleman.....G-55		136	150	30000	11750	11.00/20	12.00/20	Buda LO-525	6–4½x5½	525	6.7	400	150–2200	7	3x7¼	Y	Fu 5A650	5	OW-C375FXa	2	..	9.66	OW	TW IA	598	9214	...	FD	96	9x3x¾	C
57	Corbitt...G101F20		Opt	....	20000	.....	8.25/20	9.00/20	Con M6330	6–4x4¼	330	6.1	248	104–2800	7	2½x12	Y	Cla 205VO	5	Tim H100	HF	H	** –6.8	Tim F35	LT4IHV	420	654	a	TX	Opt	8x3¼x¼	T
58	G301F24		Opt	....	24000	.....	9.00/20	10.00/20	Con B6371	6–4½x5½	371	6.0	280	100–2600	7	2⅞x13½	Y	Fu 5A43	5	Tim R2090	2F	H	** –8.43	Tim F2090	LT4IHV	520	788	a	TD	Opt	9x2¾x¼	T
59	G601F31		Opt	....	32000	.....	10.00/20	11.00/24	Con R6513	6–4½x5½	513	5.9	400	170–2600	7	3¼x14½	Y	Fu 5A620	5	Tim 1357	2F	H	6.65–7.33	Tim F3110	Ws4IA	644	984	a	TD	Opt	10½x3¼x¼	TL
60	(T)(D) D808U32		Opt	....	32000	.....	10.00/20	11.00/24	Cum HRBB600	6–5½x6	743	17.5	540	175–2000	7	4½x16½	Y	Fu 5C720	5	Tim 1758	2F	H	** –7.33	Tim F3100	Ws4IA	644	984	a	TD	Opt	10½x3¼x¼	TL
61	Dodge....B-3-PW		126	126	9500	.....	7.50/16S	9.00/16S	Own T-137	6–3¾x4⅛	230	6.7	186	94–3200	4	2½x4.8	Y	NP-88790	4	Own T-137	HyF	H	4.89–5.8	Own T-137	O4IH	210	244	Co	TX♦	52½	‡‡x2☆x6☆	C
62	FWD.....LD		124	184	.....	▲5500	6.50/20D	9.00/20	HerCB–QXLD3	6–3⅞x4¼	236	6.7	190	97–3200	7	2½x10☆	Y	WG T9A	8	Tim F30	SF	H	** –6.67	Tim 53547	T4IHV	324	518	a	T4	60	8x3x¼	T
63	HA		132	168	.....	▲7545	8.25/20D	10.00/20	Wau 195GKA	6–4½x4	320	6.2	245	125–3200	4	2⅝x7½	Y	Own HA	5	Own HA	SF	H	6.6 –9.01	Own HA	Wg4IHV	419	706	a	T4	79½	9x3x¼	T
64	HAY		132	168	.....	▲7945	9.00/20D	10.00/20	Wau 195GKA	6–4½x4	320	6.2	245	125–3200	4	2⅝x7½	Y	Own HAY	5	Own HAY	SF	H	6.6 –9.01	Own HAY	Wg4IHV	504	775	a	T4	79½	9x3x¼	T
65	HR		132	168	.....	*8000	9.00/20	10.00/20	Wau MZA	6–4¾x4¼	404	5.6	291	130–3000	7	2¾x12½	Y	Own HR	5	Own HR	SF	H	6.6 –9.01	Own HR	Wg4IHV	419	706	a	T4	79½	9x3x¼	T
66	HRC		139	163	.....	▲9500	10.00/20D	11.00/20	Wau 140GKB	6–4½x5½	525	6.4	425	172–2600	7	3¼x13⅜	Y	Own HRC	10	Own HRC	SF	H	6.6 –9.0	Own HRC	Wg4IHA	419	706	a	T4	74½	9x3x¼	T
67	HRY		144	168	.....	8400	10.00/20D	11.00/20	Wau MZA	6–4¾x4¾	404	5.6	291	130–3000	7	2¾x12½	Y	Own HRY	5	Own HRY	SF	H	6.6 –9.0	Own HRY	Wg4IHV	504	775	a	T4	79½	9x3x¼	T
68	HG		154	154	.....	*8000	9.00/20	10.00/20	Wau MZA	6–4¾x4¾	404	5.6	291	130–3000	7	2¾x12½	Y	Own HG	5	Own HG	SF	H	6.6 –9.01	Own HG	Wg4IHV	419	706	a	T4	89¾	7☆x3x‡‡	C

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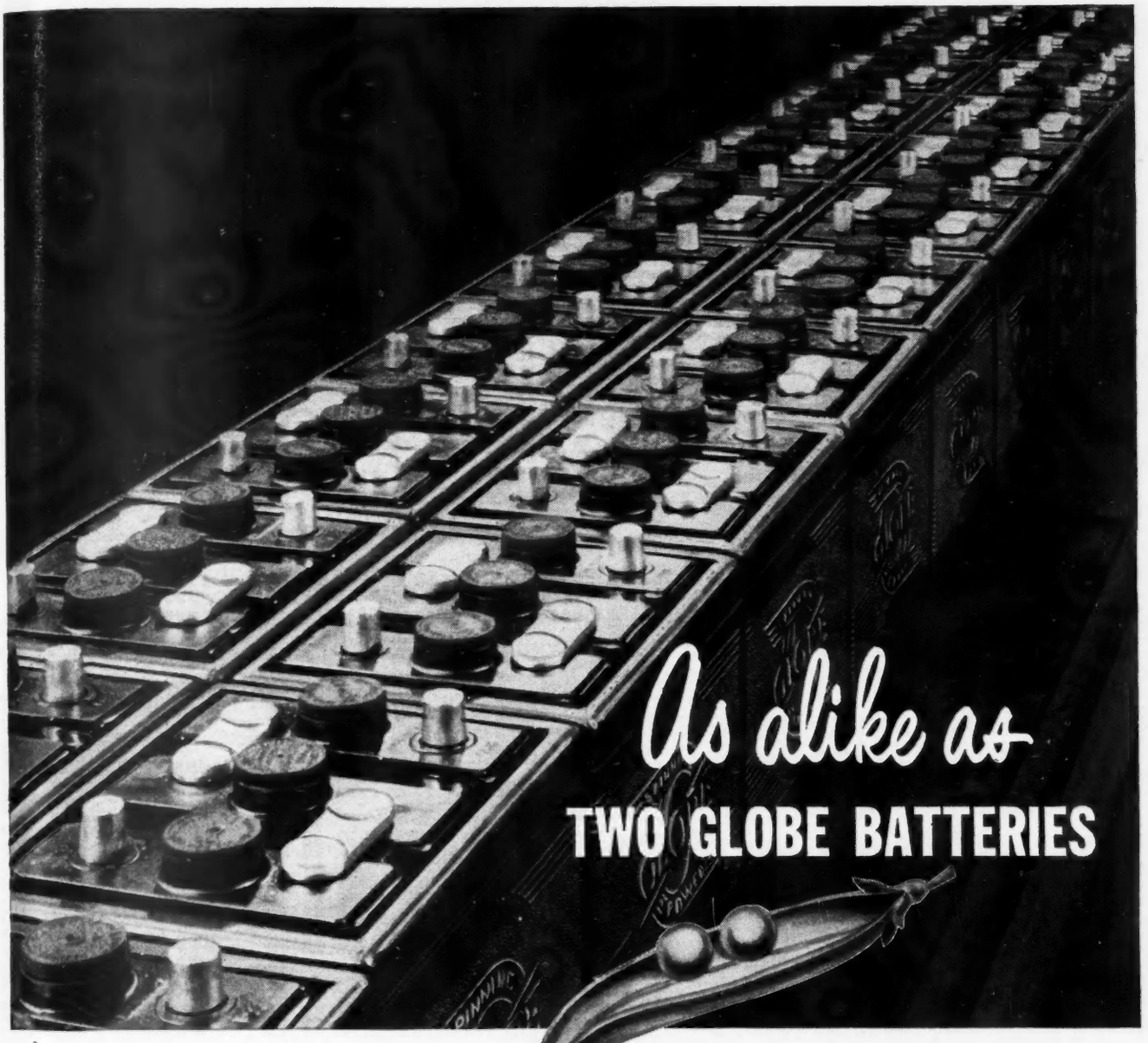
For Key to References and Abbreviations See Page 81.



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Line Number	MAKE AND MODEL	Chassis List Price	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	Forward Speeds	REAR AXLE: Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	Type
	FWD—Cont'd																														
1	HGY		154	154		▲8400	10.00/20D	10.00/20	Wau MZA	6-4¼x4½	404	5.6	291	130–3000	7–2½x12½	Y	Own HGY	5	Own HGY	SF	H	6.9 –9.01	Own HRG	Wg4IHV	504	775	a	T4	89¼	7☆x3x‡‡	C
2	SU		150	182		▲10570	11.00/20D	12.00/20	Wau SRKR	6-4½x5½	5175	5.5	369	126–2250	7–3x13¼	Y	Own U	5	Own U	BF	H	6.7–9.8	Own U	L4IHV	512	985	a	T4	90	8☆x3x‡‡	C
3	SUD		150	182		▲11100	11.00/20D	12.00/20	GMC 471	4-4¼x5	284	16.	400	133–2000	5–3½x5½	Y	Own U	5	Own U	BF	H	6.7–9.8	Own U	L4IHV	512	985	a	T4	90	8☆x3x‡‡	C
4	AU		150	182		▲11100	11.00/20D	12.00/20	Wau 140GKB	6-4½x5½	525	6.4	425	172–2600	7–3¼x13‡‡	Y	Own YU	5	Own YU	SF	H	5.7–10.8	Own YU	Wg4IHV	539	804	a	T4	90	8☆x3x‡‡	C
5	YU		150	182		▲11890	11.00/20D	12.00/20	Wau 140GK	6-4½x5½	525	6.1	425	142–2250	7–3¼x13‡‡	Y	Own S	5	Own YU	SF	H	5.7–10.8	Own YU	Wg4IHA	640	1106	a	T4	90	10☆x3x‡‡	C
6	YUD		150	182		▲12540	11.00/20D	12.00/20	GMC 471	4-4¼x5	284	16	400	133–2000	5–3½x5½	Y	Own S	5	Own ZU	SF	H	6.6–11.4	Own ZU	Wg4IHV	640	1106	a	T4	90	10½x3x‡‡	C
7	ZU		150	182		▲13370	11.00/20D	12.00/20	Wau 140GZ	6-4½x5½	554	6.4	460	188–2600	7–3½x13‡‡	Y	Own S	5	Own ZU	SF	H	6.6–11.4	Own ZU	WW4IA	644	1090	a	T4	90	10☆x3x‡‡	C
8	ZUD		150	180		▲15500	12.00/20D	12.00/24	GMC 671	6-4¼x5	426	16.	600	200–2000	7–3½x7¼	Y	Own M	10	Tim 1758W	2F	H	5.9 –8.8	Wis F409W	WW4IA	644	1090	a	T4	90	10☆x3x‡‡	C
9	M7G		150	180		▲16100	12.00/20D	12.00/24	Wau 145GK	6-5¼x6	779	6.2	590	186–2000	7–3½x17¾	Y	Own M	10	Tim 1758W	2F	H	5.9 –8.8	Wis F409W	WW4IA	693	1144	a	T4	90	10☆x3x‡‡	C
10	(D) M7D		150	180		▲15800	11.00/24D	12.00/24	Wau 145GK	6-5¼x6	779	6.2	590	186–2000	7–3½x17 ¾	Y	Own M	10	T79721WX14	2F	H	6.7 –9.2	WisF408CWXI	WW4IA	693	1144	a	T4	90	10☆x3x‡‡	CC
11	M10G		150	180		▲16400	11.00/24D	12.00/24	Bu DC844	6-5¼x6½	844	13.	605	180–1800	7–3¼x17	Y	Own M	10	T79721WX14	2F	H	6.7 –9.2	WisF408CWXI	WW4IA	693	1144	a	T4	90	10☆x3x‡‡	CC
12	(D) M10D		150	180		▲16400	11.00/24D	12.00/24	Bu DC844	6-5¼x6½	844	13.	605	180–1800	7–3¼x17	Y	Own M														
	Marmon-Herr																														
13	(C) R5-4		134	134	15500	▲5100	7.50/20D	8.25/20	Ford	8–3☆x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Ford	S	H	** –6.67	Own	F.....H	302	506	a	F	60☆	7x2¾x☆	T
14	(C) R6-4		158	158	15500	▲5331	7.50/20D	8.25/20	Ford	8–3☆x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Ford	S	H	** –6.67	Own	F.....H	302	506	a	F	40☆	7x2¾x☆	T
15	(C) LD7-4		114		5300	▲3500	15"	7.50/17	Ford	8–3☆x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Ford	S	H	** –4.27	Own	F.....H	178	259	A	F	48	5½x2¾x☆	T
16	(C) R32-4		122		6800	▲4100	7.50/17	7.50/17	Ford	8–3☆x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Ford	S	H	** –4.86	Own	F.....H	188	308	A	F	60☆	6x2¾x☆	T
17	(C) R4-4		134		10000	▲4900	7.00/20S	7.00/20	Ford	8–3☆x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Ford	S	H	** –5.83	Own	F.....H	302	506	A	F	60☆	7x2¾x☆	T
18	(C) R5-A-COE4		110	158	15500	▲5360	7.50/20D	8.25/20	Ford	8–3☆x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Ford	S	H	** –6.67	Own	F.....H	302	506	A	F	60☆	7.08x2.8x☆	T
19	(C) V5-4		134	176	17000	▲5294	7.50/20D	8.25/20	Ford	8–3☆x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Ford	S	H	** –6.67	Own	F.....H	302	506	A	F	60	7.08x2.79x☆	T
20	(C) Q5-4		136		21500	▲7100	9.00/20	10.00/20	Ford	8–3☆x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Ford	S	H	** –6.80	Own	F.....H	444	697	A	F	61	9x3x☆	T
21	(C) Q6-4		160		21500	▲7200	9.00/20	10.00/20	Ford	8–3☆x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	5	Ford	H	H	** –6.80	Own	F.....H	444	697	A	F	73	9x3x☆	T
22	(C) Q7-4		196		21500	▲7350	9.00/20	10.00/20	Ford	8–3☆x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	5	Ford	H	H	** –6.80	Own	F.....H	444	697	A	F	85	9x3x☆	T
23	(C) Q5-L4		148		21500	▲7150	9.00/20	10.00/20	Ford	8–3☆x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	5	Ford	H	H	** –6.80	Own	F.....H	444	697	A	F	104	8x3x☆	T
24	(C) Q6-L4		179		21500	▲7275	9.00/20	10.00/20	Ford	8–3☆x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	5	Ford	H	H	** –6.80	Own	F.....H	444	697	A	F	121	9x3x☆	T
25	MH610A		159	193	24000	▲9547	10.00/20D	11.00/20	Her WXLC3	6-4¼x4¾	404	6.5	312	139–2600	7–2½x13¼	Y	MH610	5	MH610A	HyF	H	** –8.43	MH610	4HV	362	584	c	F	84	12¼x3x☆	CTf
26	MH615A		159	193	26000	▲10158	10.00/20D	11.00/20	Her WXLC3	6-4¼x4¾	404	6.5	312	139–2600	7–2½x13¼	Y	MH615	5	MH615A	2S	H	** –8.43	MH615	BW4A	459	766‡	c	F	84	12¼x3x☆	CTf
27	MH620A		159	193	28000	▲10615	10.00/20D	11.00/20	Her RXLC	6-4½x5½	529	6.0	408	146–2600	7–3½x13¼	Y	MH620	5	MH620A	2S	H	** –8.43	MH620	BW4A	459	766‡	c	F	84	12¼x3x☆	CTf
28	MH625		159	193	30000	▲11511	11.00/20D	12.00/20	Her RXLC	6-4½x5½	529	6.0	408	146–2600	7–3½x13¼	Y	MH625	5	MH625	2S	H	** –8.59	MH625	BW4A	603	978	c	F	84	12¼x3x☆	CTf
29	MH630		159	193	33000	▲11711	11.00/20D	12.00/20	Her RXLDH	6-4¾x5¼	558	6.0	440	180–2600	7–3½x13¼	Y	MH630	5	MH630	2SF	H	** –8.59	MH630	BW4A	603	978	c	F	84	12¼x3x☆	CTf
30	Oshkosh W-212		144	205	21000	▲ 8430	9.00/20D	9.00/20	Her JXLD	6-4¾x4½	339		272	130–3000	7–2½x10 H	Y	Fu 5A43	5	Own W212	HF	H	** –7.5	Own W212	T4IHDV	401	665	Co	TX	82	8x3x¼	Tf
31	W17 10		150	205	28000	▲11000	11.00/20D	12.00/20S	Her RXC	6-4½x5¼	529		410	145–2200	7–3x13¼	Y	Fu 5A620	5	Own W1700	SF	H	** –6.4	Own 1700	T4IHDV	570	980	G	PX	82	8¼x3¼x¾	TF
32	WA-703		150	205	30000	▲12100	11.00/20D	12.00/20	Her RXLD	6-4½x5¼	558		430	150–2200	7–3½x13¼	Y	Fu 5A650	5	Own WA703	2F	H	** –6.8	Own WA703	L4IHV	630	975	G	PX	82	10½x3x¼	TF
33	WA-705		150	205	30000	▲12100	11.00/20	12.00/20	Her RXLDH	6-4½x5¼	558		462	190–2600	7–3½x13¼	Y	Fu 5A650	5	Own WA705	2F	H	** –6.8	Own WA705	L4IHV	630	975	G	PX	82	10½x3x¼	TF
34	W-712		160	205	34000	▲12500	11.00/20D	12.00/20	Her RXLD	6-4½x5¼	558		430	150–2200	7–3½x13¼	Y	Fu 5A650	5	Own W712	2F	H	** –6.8	Own W712	L4IHV	630	975	G	PX	82	10½x3x¼	TF
35	(D) WA-906		160	205	40000	▲16000	13.00/20D	14.00/20S	CumHRBB-600	6-5½x6	743		505	175–2000	7–4½x16	Y	Fu 4A86	10	Own WA906	2F	H	** –6.15	Own WA906	LT4IA	645	1190	G	PX	90	10½x3½x¾	Tf
36	W2200		160	205	40000	▲16770	13.00/20D	14.00/20S	Bu MO779	6-5½x6	779		575	188–2100	7–3¾x17	Y	Fu 4A86	12	Own W2200	2F	H	** –6.15	Own 2200	LT4IA	645	1190	G	PX	90	10½x3½x¾	TF
37	W2201		160	205	40000	▲16770	13.00/20D	14.00/20S	Bu MO893	6-5½x6	893		670	200–1800	7–3¾x17	Y	Fu 5F1220	12	Own W2201	2F	H	** –6.15	Own 2201	LT4IA	780	1190	G	PX	90	10½x3½x¾	LF
38	W2206		160	205	54000	▲19000	13.00/24D	14.00/24	H8 400	6-5½x7	■		930	295–2000	7–3¾x14 ‡	Y	Fu 4A86	12	Own W2206	2F	H	** –6.3	Own W2206	LT4IA	645	1190	G	PX	90	10½x3½x¾	TF
39	(D) WA2208		160	205	40000	▲16900	13.00/20D	14.00/20S	Cum NHB-600	6-5½x6	743		535	200–2100	7–4½x16½	Y	Fu 5F1220	12	Own WA2208	2F	H	** –6.15	Own WA2208	LT4IA	780	1190	G	PX	90	10½x3½x¾	LF
40	(D) W2209		160	205	54000	▲19500	13.00/24D	14.00/24	Cum NHRS600	6-5½x6	743		800	300–2100	7–4½x16½	Y	Fu 5F1220	12	Own W2209	2F	H	** –6.30	Own W2209	LT4IA	780	1190	G	PX	90	10½x3½x¾	LF
41	Sterling HB1204		127	162	24000	▲10350	9.00/20	10.00/20	Wau 6MZA	6-4¼x4½	404	5.6	290	130–3000	7–2½x12½	Y	Fu 5A43‡‡	10	T 72303DPH	2F	H	6.49–9.33	Tim F2090H	T4IHV	446	768	A	TX‡	67	9x3¼x¼	A
42	HA1304		160	178	26000	▲11000	10.00/20	11.00/20	Wau 6SRKR	6-4½x5½	5175	5.5	369	125–2250	7–3x13¼	Y	Fu 5A62‡‡	10	T 72303DPH	2F	H	6.49–9.33	Tim F2090H	T4IHV	446	768	A	TX‡	76	9x3¼x¼	A
43	HB1604		152	163	32000	▲12225	11.00/20	11.00/24	Wau 140GK	6-4½x5½	5526	6.1	425	142–2250	7–3¼x15½	Y	Fu 5A62‡‡	10	Tim 1357W	2F	H	6.65–8.60	Tim F3110W	Ws4IA	644	984	A	TX‡	87	9¼x3½x2½	A
44	▼▼HB1904		152	163	38000	▲14925	12.00/20	12.00/24	Wau 145GK▼▼	6-5¼x6	7796	.2	585	186–2000	7–3½x18	Y	Fu 4A86‡‡	8	Tim 1758W	2F	H	7.33–10.2	Tim F409CW	Ws4IA	644	1032	A	TX‡	87	9¼x3½x2½	A
45	HB2254		152	163	44000	▲16350	12.00/20	13.00/24	Wau 145GKB	6-5¼x6	7796	.2	595	222–2100	7–3½x18	Y	Fu 4A86‡‡	8	Tim 797219W	2F	H	7.66–10.2	Tim F409CW	Ws4IA	684	1032	A	TX‡	87	9¼x3½x2½	A
46	(D) HB2254D		159	170	44000	▲16625	12.00/20	13.00/24	Cu NHBD600	6-5½x6	743	15.	537	200–2100	7–4½x13 H	Y	Fu 4A86‡‡	8	Tim 79721W	2F	H	7.66–10.2	Tim F409CW	Ws4IA	684	1032	A	TX‡	87	9¼x3½x2½	A
47	Walter (c.f.) FZM		126	150	24000	9000	12.00/20S		Wau MZA	6-4¼x4½	404	5.6	290	125–2600	7–2½x12½	Y	Own FJN	6	Own MS	2	H	** –8.00	Own FJ	O4IA	470	670	G	FI	84	12x3½x½	B
48	(c.f.) AEB		126	150	32000	13000	12.00/24S		Wau 140GZ	6-4½x5½	5546	2.4	440	150–2250	7–3¼x14	Y	Own FC	6	Own FCC	2	H	** –9.00	Own FC	O4IA	585	890	G	FI	108	14x3¾x1½	B
49	(c.f.) AGB		138	162	42000	14000	12.00/24S		Wau 145GK	6-5¼x6	7796	.2	585	185–2000	7–3½x17¾	Y	Own FA	6	Own FC	2	H	** –9.00	Own FC	O4IA	585	890	G	FI	108	14x3¾x1½	B
50	(c.f.) AGR		138	162	42000	15000	12.00/24D		Wau 145GK	6-5¼x6	7796	.2	585	185–2000	7–3½x17¾	Y	Own FA	6	Own FCR	2	H	** –9.00	Own FC	O4IA	585	890	G	FI	108	14x3¾x1½	B
51	Ward La Fr. FD1				35000	▲11500	11.00/22	11.00/22	Cont 6513	6-4½x5¾	513	5.9	405	180–2800	7–3¼x14½		Ful 5A620	5	Tim R462W	S2	R	** –8.15	Tim F3100W	BW4IA	627	1029	Co	PM	.....	10x3x☆	C
52	(D) FD2				35000	▲12000	11.00/24	11.00/24	Cum HB600	6-5 ⅛x6	672	17.	500	150–1800	7–4½x16¾		Ful 5A920	5	Tim R462W	S2	R	** –8.15	Tim F3100W	BW4IA	627	1029	Co	PM	.....	10x3x☆	C
53	Willys Jp. CJ-3A	*1290	80	80	3500	*2108	6.00/16S	7..0/15S	Own CJ-3A	4–3½x4½	134	6.5	105	60–4000	3–2.33x5.48	N	WG T90C	‡6	Spi 44-2	Hy½	H	** –5.38	Spi 25	B4IH	118	198	a	F	.....	4x1⅝x☆	P
54	473-4WD	*1678	118	118	5300	*3115	7.00/16S		Own 473	4–3½x4½	134	7.4	114	72–4000	3–2.33x5.48	N	WG T90C	‡6	Tim 51540-G3†	S½	H	** –5.38	Spi 25	B4IH	176	276	a	2I	42.28	5½x2x☆	TD
	Six-Wheelers Wheels▼ Driven																														
	Corbitt																														
55	G302R34-4R		173		34500		8.25/20	9.00/20	Con B6427	6-4☆x4¼	427	5.9	325	127–2600	7–2¼x13½	Y	Fu 5A430	5	Tim 1055	SdF	L	5.71–7.40	Tim 35000	Ws6IA	.....	.....	a	TX	88	8¼x3¼x☆	TL
56	G402R40-4R		173		40000		9.00/20	10.00/20	Con T6427	6-4☆x4¼	427	6.3	336	151–2600	7–2¾x13½	Y	Fu 5A620	5	Tim 1555	SdF	L	5.57–7.80	Tim 35000	Ws6IA	731	1058	a	TD	88	8¼x3¼x☆	TL
57	D401R40-4R		173		40000		10.00/20	11.00/22	Cum JBS600	6-4½x5	101		345	150–2500	7–3¾x	Y	Fu 5C720	5	Tim 1555	SdF	L	5.57–7.80	Tim 35000	Ws6IA	731	1058	a	TD	88	8¼x3¼x☆	TL
58	(T) (D) D808Q46-2C		136		46000		10.00/20	11.00/20	Cum HRBB600	6-5½x6	743	17.	540	175–2000	7–4½x16½	Y	Fu 10B1120	5	Tim R300	2F	H	4.93–5.91	Tim FE900	Ws6IA	1032	1578	a	2M	68	8x3¼x¾	TL
59	(D) D802R46-4R		188		46000		10.00/20	11.00/20	Cum HRB600	6-5½x6	743	17.	540	165–1800	7–4½x16½	Y	Fu 10B1120	10	Tim SW3022	WF	L	4.71–6.17	Tim FE900	Ws6IA	1073	1554	a	TD	84	10½x3¼x¼	TL
	Dodge																														
60	B3VXL, B3VX		154	190	35000		9.00/20	10.00/20	Own T-323	6-3¾x5	331	6.5	280	145–3000	7–3x11.23	Y	NP 88450	5	Tim SBD1555	HyS	L	6.8 –7.8	Tim FD900	T6IA	827	1056	C	TX	84	10x3x¼	CP
61	B3YXL, B3YX		154	190	40000		10.00/20	10.00/20	Own T-325	6-4x5	377	6.5	330	154–3000	7–3x11.23	Y	Cla 290V2	5	T SD3010P	2	L	** –8.27	Tim FD900	T6IA	824	1470	c	TX	84	10½x3☆x☆	CP
62	Duplex TH6		162	220	30000	9180	8.25/20	9.00/20	Her JXD	6-4¾x4½	320	6.2	240	113–3000	7–2½x10 H	Y	Fu 5B33‡	10	Tim SBD1055	BF	L	**–6.16	Tim 32502H	L6IHV	513	839	A	TX	83½	9½x3½x☆	L
63	RH-6		160	208	40000	11500	10.00/20	11.00/20	Her WXLC3	6-4¼x4¾	404	5.8	312	139–2600	7–2½x13¼	Y	Fu 5A43	5	Tim SD3010	2F	R	8.27	Tim FD900	WS61A	1075	1525	A	TX	73¼	10½x3½x☆	L
64	(D) L6		172	208	45000	15000	11.00/20	12.00/20	Cum HB600	6-4¾x6	672	17.	495	150–1800	7–4 ½x16 ⅛	Y	Fu 5A920	5	Tim SD454	SF2	L	6.8–8.15	Tim FE900	Ws6IA	1137	1625	A	TX	77⅝	10½x3¾x☆	L
65	Federal 663MA		179	225	42000	14500	10.00/20	10.00/22	Con R6602‡‡	6-4⅛x5½	602	6.4	466	205–3000	7–3¼x14½	Y	Fu 5A65▼	15	T SW3012P†	WF	R	** –6.16	Tim FE900	Ws6IA	1082	1569	a	TD	108	10¼x3¼x☆	TfL
66	664MAB		179	225	60000	15850	11.00/22	12.00/20	Con R6602‡‡	6-4⅛x5½	602	6.4	466	205–3000	7–3¼x14½	Y	Spi 7741▼	12	Tim SW456P	WF	R	** –7.6	Tim 27452W	Ws6IA	1308	1888	a	TD	108	10½x3¼x☆	TfL

For Key to References and Abbreviations See Page 81.

(Turn to Page 94, Please)

You'll feel this way, too, when you

cut cost per mile

with the help of Pure Oil's exclusive Cost-Cutting Plan for Fleet Operators

Since the Yellow Coach Corporation first started using Purol Heavy-Duty Motor Oil in its 37 gasoline and diesel-powered buses, it has rolled up more than 165 million passenger-miles without a single failure due to faulty lubrication. And it gets up to 200,000 miles on an engine overhaul.

At the same time, thanks to regular Pure-Sure Analyses of used motor oil, drain periods have been extended from 1,500 to 3,000 and then to 4,000 miles—in perfect safety and at a considerable reduction in operating costs.

Mr. W. E. Penley (left) and Mr. Elmer Nye (right), president and maintenance engineer, respectively, of the Yellow Coach Corporation, Bristol, Va.-Tenn.

Yellow Coach President W. E. Penley writes:

"You can expect our continued patronage 100% on all Pure products, and feel free to refer anyone to us as to the satisfaction we have received from their use."

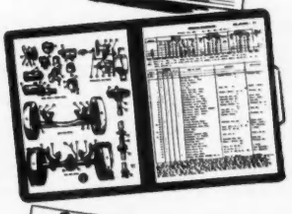
Case history after case history proves that Pure Oil fleet lubricants and Pure Oil service helps can *cut cost per mile*. To put them to work for you, see your Pure Oil salesman or call your local Pure Oil office today.

THE PURE OIL COMPANY • General Offices: Chicago

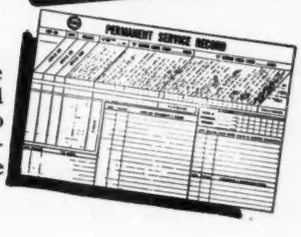
Four ways you can slash cost per mile with Pure Oil's Cost-Cutting Plan:

1 **Expert "trouble-shooting."** Let The Pure Oil Company's Technical Service Department provide a *free* Pure-Sure Analysis of your used motor oil . . . tell you whether you can extend filter change periods, correct faulty combustion, reduce engine wear, or improve engine cleanliness.

2 **Exact, correct lubrication.** Use Pure Oil's exclusive "serviceman's view" Lubrication Guide Charts to insure correct, effective lubrication at every vital chassis and under-hood point.



3 **Systematize and simplify!** Use Pure Oil's new and practical P. M. Service Records to streamline your own program of preventive maintenance and make it more efficient.



4 **Cost-cutting lubricants.** Protect your equipment—trucks, buses and tractors—with new Purol Heavy-Duty Motor Oil and the other great new Pure Oil fleet lubricants. Purol H. D. meets and exceeds the new MIL-O-2104 specifications . . . is fully fortified for heavy-duty service.

Purol H.D.

THE OIL THAT CAN TAKE IT

THE PURE OIL COMPANY, U.S.A. PURE

Be *sure* with Pure . . . fleet lubricants . . . gasolines . . . tires . . . batteries and accessories

(Continued from Page 92)

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear Standard Front and Rear	TIRE SIZES Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings Number Diameter and Length	Governor Standard	TRANSMISSION Make and Model	Forward Speeds	REAR AXLE Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE Make and Model	BRAKES SERVICE Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME Side Rail Dimensions	Type
	Federal Con'd																														
1	.....664MA		179	225	60000	15950	11.00/22	12.00/20	Con R6602†‡	6–4⅞x5½	602	6.4	466	205–3000	7–3¼x14½	Y	Spi 7741▼	12	Tim SFD460	BR	R	** –8.15	Tim 27452W	Ws6IA	1092	1624	a	TD	108	10½x3‡x⅞	TfL
2	.....2951T		163	199	54000	▲8600	8.25/20	9.00/20	Her JXDF	6–4x4½	320	6.5	250	131–3200	7–2½x10½	Y	Cla 205V‡‡▲	10	TSBD1055dph	SF	R	7.53 10.35	Tim 32514H	LT61HV	544	914	a	TX	84	9⅞x3½x¼	TL
3	.....3051T		163	199	36000	▲8635	8.25/20	9.00/20	Her JXLDF	6–4x4½	339	6.5	272	131–3200	7–2½x10½	Y	Cla 205V‡‡▲	10	TSBD1055dph	SF	R	7.53 10.35	Tim 32514H	LT61HV	544	914	a	TX	84	9⅞x3½x¼	TL
4	.....3451T		167	203	38000	▲10400	9.00/20	10.00/20	Con T6371F	6–4½x4½	371	6.4	297	144–3000	7–2¼x13½	Y	Cla 290V▲	10	TSBD1555dph	SF	R	8.33 11.47	Tim FD900	LT61HV	752	1132	a	TX	84½	10¼x3½x⅞	TL
5	.....645M		167	215	40000	12325	10.00/22	10.00/22	Con T64271‡‡	6–4⅞x4¼	427	6.4	348	155–2600	7–2⅛x13½	Y	Cla 290V	5°	T-SD3010P†	BR	R	** –9.16	Tim FD900	Ws6IA	1073	1550	a	TD	84½	10¾x3½x⅞	TfL
6	F.W.D. H6x6G		Opt	Opt	.....	▲12150	9.00/20D	10.00/20	Wau MZA	6–4¼x4¾	404	5.6	291	130–3000	7–2⅝x12½	Y	Own H	10	Own H	SF	H	** –7.45	Own H	Wg6IHV	673	1130	a	T6	Opt	9x3x¼	C
7	.....HC6X6G		Opt	Opt	.....	▲12620	9.00/20D	10.00/20	Wau 140GKB	6–4½x5½	525	6.4	425	172–2600	7–3¼x13‡‡	Y	Own H	10	Own H	SF	H	** –7.4	Own H	Wg6IHA	673	1130	a	T6	Opt	9x3x¼	C
8	.....HC6X6D		Opt	Opt	.....	▲13410	9.00/20D	10.00/20	GMC 471	4–4¾x5	284	16.4	400	133–2000	5–3½x5⅝	Y	Own H	10	Own H	SF	H	** –7.4	Own H	Wg6IHV	673	1130	a	T6	Opt	9x3x¼	C
9	.....MU6X6G		Opt	Opt	.....	▲16000	11.00/20D	12.00/20	Wau 145GK	6–5¼x6	779	6.2	590	186–2000	7–3½x17¾	Y	Own M	10	Own M	SF	H	** –4.9	Own YU	Ww6IA	726	1463	a	T6	Opt	10⅞x3x‡‡	C
10	.....MU6X6D		Opt	Opt	.....	▲16355	11.00/20D	12.00/20	GMC 671	6–4¾x5	426	16.6	600	200–2000	7–3½x7¼	Y	Own M	10	Own YU	SF	H	** –4.9	Own YU	Ww6IHV	726	1463	a	T6	Opt	10⅞x3x‡‡	C
11	.....M6x6G		Opt	Opt	.....	▲21000	11.00/24D	12.00/24	Wau 145GK	6–5¼x6	779	6.2	590	186–2000	7–3½x17¾	Y	Own M	10	Wis SD462	2F	L	** –6.06	Wis F409	WW6IA	1080	1680	a	T6	Opt	10⅞x3x‡‡	P
12	(D) M6X6D		Opt	Opt	.....	▲21600	11.00/24D	12.00/24	Bu DC844	6–5¼x6½	844	13.6	605	180–1800	7–3¾x17	Y	Own M	10	Wis SD462	2F	L	** –5.6	Wis F409	WW6IA	1080	1680	a	T6	Opt	10⅞x3x‡‡	P
13	**Kenworth.** (D). 522		191	255	42000	13900	10.00/20	11.00/22	Cum HB6	6–4⅞x6	672	17.	500	150–1800	7–4½x16⅞	Y	BL 8241	4	T U200PA††	H2F	H	5.91–9.76	Tim FE900N	Ws4IA	880	1368	a	TD	100	9½x3¼x⅞	C
14	.....(D)523. 4R		191	255	42000	14600	10.00/20	11.00/22	Cum HB6	6–4⅞x6	672	17.	500	150–1800	7–4½x16⅞	Y	BL 8241	4	T SW3012PA	WF	L	4.72–6.16	Tim FE900N	Ws4rIA	868	1400	a	TD	100	9½x3¼x⅞	C
15	.....(D)524. 4R		195	255	42000	15500	10.00/20	11.00/22	Cum HB6	6–4⅞x6	672	17.	500	150–1800	7–4½x16⅞	Y	BL 8241	4	Tim SW456P	WF	L	5.67–8.20	Tim FE900N	Ws4rIA	1016	1556	a	TD	104	9½x3¼x⅞	abC
16	.....(D)548. 4R		191	.....	60000	20200	11.00/22	12.00/24	Cum HB6	6–4⅞x6	672	17.	500	150–1800	7–4½x16⅞	Y	BL 8241	4	Tim SFD460P	B2F	L	8.07–11.5	Tim FE900N	Ws4rIA	1016	1556	a	TD	100	9½x3¼x⅞	abC
17	.....(D)552. 4R		202	.....	50000	21000	13.00/24	13.00/24	Cum HB6	6–4⅞x6	672	17.	500	150–1800	7–4½x16⅞	Y	BL 8241	4	Tim SFD460P	B2F	L	8.07–11.5	Tim FE900N	Ws4rIA	1016	1556	a	TD	111	9½x3¼x⅞	dbC
18	(D) 825. 4R		195	255	42000	14400	10.00/20	11.00/22	Cum HB6	6–4⅞x6	672	17.	500	150–1800	7–4½x16⅞	Y	BL 8241	4	T GSW458P	WF	L	5.67–8.20	Tim FE900N	Ws4rIA	1016	1556	a	TD	104	9½x3¼x⅞	C
19	.....829. 4R		178	255	42000	13600	10.00/20	11.00/22	Wau 140GZ	6–4½x5½	554	6.4	450	188–2600	7–3x13‡‡	Y	Fu 5C650	5	T SD3010PA	B2F	L	6.84–10.2	Tim FE900N	Ws4rIA	868	1400	a	TD	87	9½x3¼x⅞	C
	Marmon-Herr.																														
20	(C) R5-6		156	....	22500	▲6850	7.50/20D	7.50/20	Ford	8–3⅛x3¾	239	6.4	180	100–3800	3–2.49x4.71	N	Ford	4	Timken	S	H	** –6.67	Own	F–H	503	836	a	F	82▲	7 ½x3x ¼	C
21	(C) R6-6		180	....	22500	▲7100	7.50/20D	7.50/20	Ford	8–3⅛x3¾	239	6.4	180	100–3800	3– ½x4.71	N	Ford	4	Timken	S	H	** –6.67	Own	F–H	503	836	a	F	106▲	7 ½x3x ¼	C
22	(C) ...R5-COE6		156	180	22500	▲7350	7.50/20D	7.50/20	Ford	8–3⅛x3¾	239	6.4	180	100–3800	3–2 ½x4.71	N	Ford	4	Ford	S	H	** –6.67	Own	F...H	303	563	A	F	106.17	08x2.8x ¼	T
23	(C) Q-5-6		160	....	35000	▲9550	9.00/20	10.00/20	Ford	8–3½x4¾	337	6.4	255	145–3600	3–2⅛x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F...H	772	1161	A	F	85	9x3x ¼	T
24	(C) Q-6-6		184	....	35000	▲9700	9.00/20	10.00/20	Ford	8–3½x4¾	337	6.4	255	145–3600	3–2⅛x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F...H	772	1161	A	F	109	9x3x ¼	T
25	(C) Q-5L-6		172	....	35000	▲9650	9.00/20	10.00/20	Ford	8–3½x4¾	337	6.4	255	145–3600	3–2⅛x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F...H	772	1161	A	F	97	9x3x ¼	T
26	(C) Q-6L-6		203	....	35000	▲9825	9.00/20	10.00/20	Ford	8–3½x4½	337	6.4	255	145–3600	3–2⅛x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F...H	772	1161	A	F	128	9x3x ¼	T
	Oshkosh																														
27	.....W-24006X6		178	Opt	35000	15150	10.00/20D	10.00/20	Her RXC°	6–4½x5¼	529	....	410	145–2200	7–3x13¼	Y	Fu 5A620	10	Tim SFD-157	2F	L	** –6.1	Own W-2400	T6IA	796	....	....	PX	110	10½x3x⅝	TF
28	.....W712-6X6		178	Opt	47000	▲17900	11.00/20D	12.00/20	Her RXLDH	6–4¾x5¼	558	....	462	190–2600	7–3½x13¼	Y	Fu 5A650	10	Tim SFD450	2F	L	** –6.31	Own W-712	LT6IA	1156	1889	....	PX	110	10⅞–3 ½–⅝	B
29	(D) W1500CD		180	Opt	47000	▲19300	11.00/20	12.00/20	Cum HB600	6–4½x6	672	....	500	150–1800	7–4½x16	Y	Fu 4A86	8	Tim SFD–450	2F	L	** –6.31	Own W-1500	LT6IA	1156	1889	....	PX	112	10⅛–3 ½–⅝	B
30	(D)..**W1602BDH		Opt	Opt	95000	29300□	14.00/24D	14.00/24	Bu 6DC844	6–5¼x6½	844	....	600	180–1800	7–3¾x17	Y	Fu 4BI86	12	Tim SD472	2F	L	** –13.9	Own W-1602	LT6IA	....	2217	....	Opt	Opt	12⅛–3 ½–⅝	B
31	WA1600BG		Opt	Opt	60000	▲22770	11.00/24D	12.00/24	Bu MO893††	6–5⅝x6	893	....	625	200–1800	7–3¾x17	Y	Fu 4BI86	12	Tim SFD460	2F	L	** –9.82	Own W-1600	LT6IA	1156	1189	....	Opt	Opt	12⅛–3 ½–⅝	B
32	(D)..WA1600CD		Opt	Opt	60000	▲23400	11.00/24D	12.00/24	Cum HB600**	6–4½x6	672	....	500	150–1800	7–4½x16	Y	Fu 4BI86	12	Tim SFD460	2F	L	** –6.14	Own W-1600	LT6IA	1156	1189	....	Opt	Opt	12⅛–3 ½–⅝	B
33	(D)**WA1600CDH		Opt	Opt	60000	24000□	11.00/24D	12.00/24	Cum HB600**	6–4½x6	672	....	500	150–1800	7–4½x16	Y	Fu 4BI86	12	Tim SFD460	2F	L	** –9.82	Own W-1600	LT6IA	1156	1189	....	Opt	Opt	12⅛–3 ¼–⅝	B
	Peterbilt																														
34	(D).....350		193	Opt	36000	.....	10.00/20D	11.00/22	Cum HB600	6–4½x6	672	17.	500	150–1800	7–4½x16½	Y	Spi 8041	12	Tim SW3022	WF	R	6.00– 8.5	Tim FE900DPA	Ws6IA	1125	1569	....	TD	99½	10⅛x3½x⅞	CT
35	(D).....360		198	Opt	36000	.....	10.00/20D	11.00/22	Cum HB600	6–4½x6	672	17.	500	150–1800	7–4½x16½	Y	Spi 8041	12	Tim SW456W	WF	R	6.00–10.2	Tim FE900DPA	Ws6IA	1005	1517	....	TD	104½	10⅛x3½x⅞	CT
36	(D).....370		198	Opt	44000	.....	10.00/20D	11.00/22	Cum HB600	6–4½x6	672	17.	500	150–1800	7–4½x16½	Y	Spi 8041	12	Tim SW456W	WF	R	6.00–10.2	T 27463	Ws6IA	1084	1626	....	TD	104½	10⅛x3½x⅞	CT
37	(D).....380		194	Opt	44000	.....	10.00/20D	11.00/22	Cum HB600	6–4½x6	672	17.	500	150–1800	7–4½x16½	Y	Spi 8041	12	Tim SD462W	2F	R	** –8.07	T 27463	Ws6IA	1084	1626	....	TD	98½	10⅛x3½x⅞	CT
38	(D).....390		197	Opt	79000	.....	12.00/24	14.00/24	Cum HB600	6–4½x6	672	17.	500	150–1800	7–4½x16½	Y	Spi 8041	12	Tim SD472W	2F	R	** –8.07	T 27463	Ws6IA	1622	2215	....	TD	103½	10⅝x3½x⅞	CT
39	Reo.....F-226		150	203	40000	10010	9.00/20	10.00/20	Own 331	6–4½x4¼	331	6.4	264	140–3200	7–2½x9.408	Y	Cla 205V	5	Tim SFD157	F2	T	6.49–7.66	Tim FD900	T6IVH	670	1134	var	TX	85½	9¼x3 ⅞x ⅛	Tf
40	.....F-236		169	200	45000	12655	10.00/20	11.00/20	Con T6427	6–4⅞x4¾	427	6.4	348	151–2800	7–2⅛x12.1	Y	Cla 290V	5	Tim SD3020	F2	T	7.5	Tim FE–900	TWs6IA	1082	1570	var	TD	104½	9¼x3 ⅞x ⅛	TfB
	Sterling																														
41	.....HA1605		164	235	32000	▲12400	9.00/20	10.00/20	Wau 6MZA	6–4¼x4¾	404	5.6	290	130–3000	7–2⅝x12½	Y	Fu 5A43	5	T SBD1555P‡	SF	L	6.80–13.1	T FD900DPA	Ws6IA	786	1138	A	TX	83	9x3¼x¼	A
42	.....HA1805		164	235	36000	▲13100	10.00/20	11.00/20	Wau 6MZA	6–4¼x4¾	404	5.6	290	130–3000	7–2⅝x12½	Y	Fu5A43-3A65	15	Tim SD3020P	2F	L	6.84–10.2	T FD900DP	We6IA	954	1554	A	TX‡	83	9x3¼x¼	A
43	.....HB2205		168	231	44000	▲14550	11.00/20	11.00/22	Wau 140GK	6–4½x5½	525	6.1	425	142–2250	7–3¼x15½	Y	Fu5A62-3A65	15	Tim SD3020P	2F	L	6.84–10.2	T FE900DPA	We6IA	934	1554	A	TX‡	92	9¼x3⅝x⅜	A
44	..**HB2755		168	231	55000	▲15850	11.00/24	12.00/24	Wau 140GKB▼▼	6–4½x5½	525	6.4	425	172–2700	7–3¼x15½	Y	Fu5A62-3A65	15	Tim SW456P	WF	L	5.67–8.20	Tim 27462W	We6IA	1164	1892	A	TX‡	92	9¼x3⅝x⅜	A
45	(D) ..HA2605D		188	251	52000	▲17950	11.00/20	12.00/24	Cum NHB600	6–5¼x6	743	15.	537	200–2100	7–4¼x13‡‡	Y	Fu4A86-3A92	12	Tim SW456P	WF	L	5.67–8.20	Tim 27462W	We6IA	1164	1892	A	TX‡	92	9¼x3⅝x⅜	A
46	(D) ..TA2105D		188	251	42000	▲16250	10.00/20	10.00/22	Cum NHB600	6–5¼x6	743	15.	537	200–2100	7–4½x13‡‡	Y	Fu4A86-3A92	12	Tim SW3012P	WF	L	4.71–6.17	Tim FE900DP	We6IA	934	1554	A	TX‡	92	9x3¼x¼	A
47	(D) ..TA2115D		188	251	42000	▲16375	11.00/20	11.00/22	Cum NHB600	6–5¼x6	743	15.	537	200–2100	7–4½x13‡‡	Y	Fu4A86-3A92	12	Tim SW3012P	WF	L	4.71–6.17	Tim FE900DP	We6IA	934	1554	A	TX‡	92	9x3¼x¼	A
48	.....▼▼HB2516		168	231	50000	▲15500	11.00/20	11.00/24	Wau 140GK▼▼	6–4½x5½	525	6.1	425	142–2250	7–3¼x15½	Y	Fu5A62-3A65	15	Own 196W	CD	R	6.04–7.31	T FE900DPA	We6IA	1054	1782	A	TX‡	92	9¼x3⅝x⅜	A
49	.....▼▼HB2756		168	231	55000	▲16750	11.00/24	12.00/24	Wau 140GKB▼▼	6–4½x5½	525	6.4	425	172–2700	7–3¼x15½	Y	Fu5A62-3A65	15	Own 230W	CD	R	6.04–7.31	Tim 27462W	We6IA	1280	1988	A	TX‡	92	9¼x3⅝x⅜	A
50	(D) ..HB3006D		168	231	60000	▲20000	11.00/24	12.00/24	Cum HBD600	6–4½x6	672	17.	495	150–1800	7–4½x13‡‡	Y	Fu4A86-3A92	12	Own 320W	CD	R	10.4–13.2	Tim 27462W	We6IA	1280	1988	A	JX	92	9¼x3⅝x⅜	A
51	(D) ..HB3506D		181	192	70000	▲23750	12.00/24†	13.00/24▼	Cum HBD600	6–4½x6	672	17.	495	150–1800	7–4½x13‡‡	Y	Fu4A86-3A92	12	Own 330W	CD	R	10.4–13.2	Tim 27462W	We6IA	1280	1988	A	JX	98	11⅛x3¾x⅝	AL
52	(D) ..HB4506D		181	192	90000	▲27300	14.00/24▼	14.00/24▼	Cu NHBD600	6–5¼x6	743	15.	537	200–2100	7–4½x13‡‡	Y	F4A112-3A92	12	Own 340W	CD	R	** –11.59	Shw FE18A34	We6IA	1238	1988	A	JX	98	11⅛x3¾x⅝	AL
53	(D) ..SF6506D		190	190	130000	▲44500	16.00/24■	16.00/24	Bu 8DA1125	8–5¼x6½	•	13.	855	287–2100	9–3¾x21½	Y	F4A112-3A92	12	Own 500W	CD	R	** –14.88	Tim FU900P	We6IA	2066	2748	A	JX	140	15x18½x⅜	AL
54	(D) ..SF7506D		190	190	150000	▲46500	18.00/24•	18.00/24•	Bu 8DA81125	8–5¼x6½	•	13.	980	350–2100	9–3¾x21½	Y	F4A112-3A92	12	Own 500W	CD	R	** –14.88	Tim FU900P	We6IA	2066	2748	A	JX	140	15x18½x⅜	AL
	Truckstell																														
55	(C) F4X26....4R		144	209	26000	7300▲	7.50/20	8.25/20•	Ford	8–3⅛x3¼	239	6.8	180	100–3800	3–2.49x4.9	N	Ford ⊡⊡	8	Ford	SF	R	** –6.67	Ford	F6IHV	498	836	Co	TX	64	8x3x .46	TL▼
56	(C) F4X27 (coe)4R		126	185	27000	7665▲	7.50/20	8.25/20•	Ford	8–3⅛x3¼	239	6.8	180	100–3800	3–2.49x4.9	N	Ford ⊡⊡	8	Ford	SF	R	** –6.67	Ford	F6IHV	498	836	Co	TX	71	8x3x .46	TL▼
57	F4X29.....4R		156	200	29000	7850▲	7.50/20	8.25/20-10	Ford	8–3⅛x3¼	239	6.8	180	100–3800	3–2.49x4.9	N	Ford‡‡	12	Ford	HyF	R	** –7.2	Ford	F6IHV	498	836	Co	TX	64	8x3x .46	TL▼
58	F4X30.....4R		126	185	30000	8200▲	7.50/20	8.25/20-10	Ford	8–3⅛x3¼	239	6.8	180	100–3800	3–2.49x4.9	N	Ford‡‡	12	Ford	HyF	R	** –7.2	Ford	F6IHV	498	836	Co	TX	71	8x3x .46	TL▼
59	(C) F4X29.....4R		156	200	29000	7800▲	8.25/20	9.00/20	Ford	6–3.5x4.4	254	6.8	212	110–3400	4–2.8x5.0	Y	Ford‡‡	12	Ford	Hy	R	** –7.2	Ford	F6IHV	498	836	Co	TX	82	8x3x½	TL▼
60	(C) F4X30(coe)4R		126	185	30000	8200▲	8.25/20	9.00/20	Ford	6–3.5x4.4	254	6.8	212	110–3400	4–2.87x5.0	Y	Ford‡‡	12	Ford	Hy	R	** –7.2	Ford	F6IHV	498	836	Co	TX	71	8x3x½	TL▼
61	(C) F4X34.....4R		156	228	34000	10000▲	8.25/20	9.00/20•	Ford	8–3½x4¾	337	6.4	255	145–3600	3–2.87x5.0	Y	Ford ‡‡	15	Ford	HyF	R	** –6.8	Ford	F6IHV	745	1169	Co	TX	82	9¼x3x½	TL▼
62	(C) F4X38.....4R		156	228	38000	10650▲	9.00/20	10.00/20•	Ford	8–3½x4¾	337	6.4	255	145–3600	3–2.87x5.0	Y	Ford ‡‡	15	Ford	HyF	R	** –7.16	Ford	F6IHV	825	1231	C	TX	82	9¼x3x½	TL▼
63	F4X40.....4R		156	228	40000	11340	9.00/20	10.00/20	Ford	8–3½x4¾	337	6.4	255	145–3600	3–2.87x5.0	Y	Ford‡‡	15	Ford	dj	R	** –8.87	Ford	F6IA	825	1231	c	TX	82	9¼x3x½	TL▼
64	(C) C4X28.....4R		151	217	28000	7500▲	7.50/20	8.25/20•	Chev.	6–3⅛x3‡‡	235	6.6	192	93–3100	4–St. Chev.	Y	Chev. ⊡⊡	8	Chev.	HyF	R	** –6.17	Chev.	C6IHV	797	930	Co	TIX	68	9¼x3x½	C▼
65	(C) C4X29 (coe)4R		125	192	29000	7865▲	7.50/20	8.25/20•	Chev.	6–3⅛x3‡‡	235	6.6	192	93–3100	4–St. Chev.	Y	Chev. ⊡⊡	8	Chev.	HyF	R	** –6.17	Chev.	C6IHV	797	930	Co	TIX	69	9¼x3x¼	C▼
66	C4X29.....4R		151	217	29000	8040▲	7.50/20	9.00/20-10	Chev.	6–3⅛x3‡‡	235	6.6	192	93–3100	4–St. Chev.	Y	Chev.‡‡	12	Chev.	HyF	R	** –6.17	Chev.	C6IHV	797	930	Co	TIX	68	9¼x3x½	C▼
67	C4X30 (coe) 4R		125	192	30000	8400▲	7.50/20	9.00/20-10	Chev.	6–3⅛x3‡‡	235	6.6	192	93–3100	4–St. Chev.	Y	Chev.‡‡	12	Chev.	HyF	R	** –6.17	Chev.	C6IHV	797	930	Co	TIX	69	9¼x3x½	C▼

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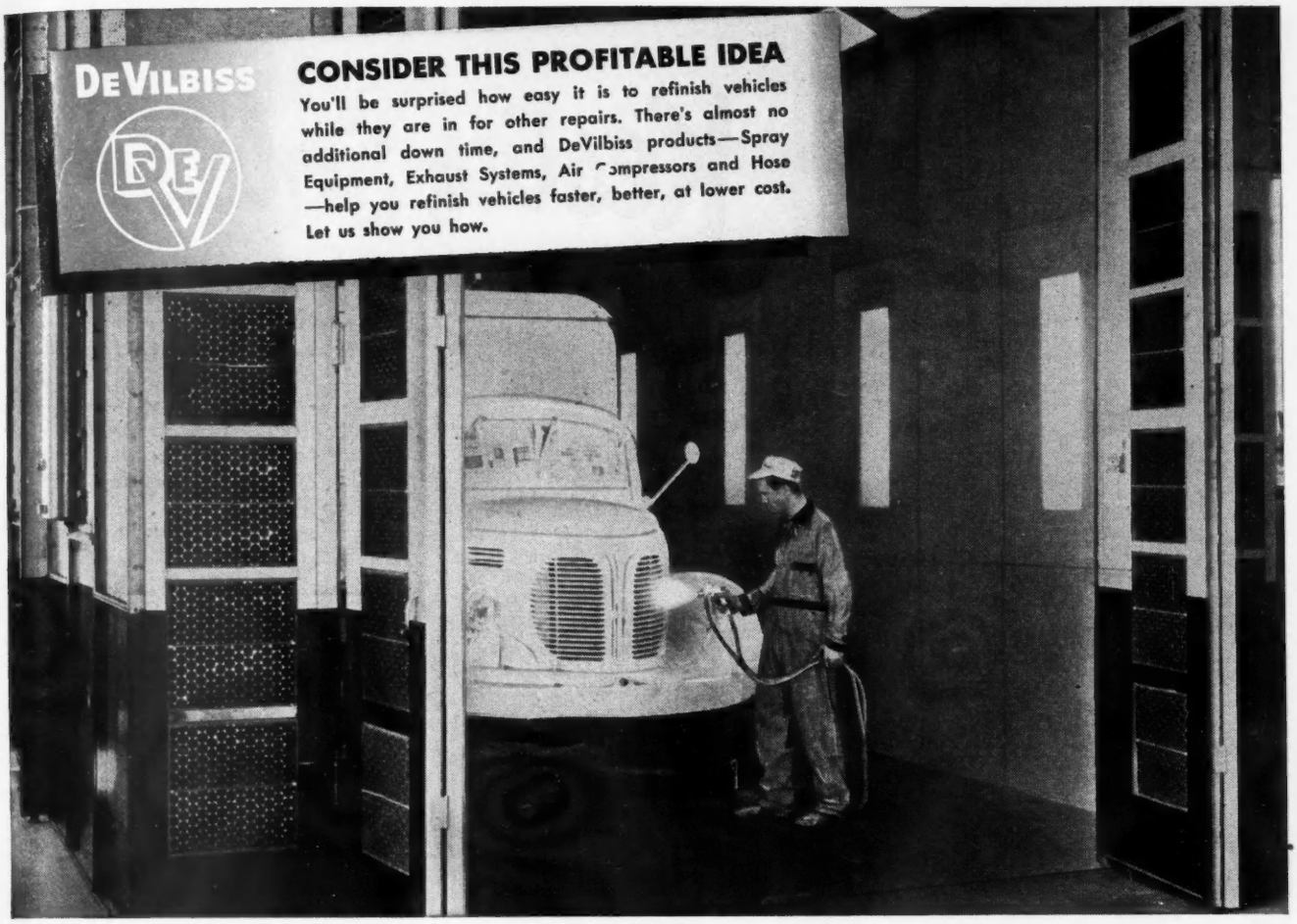
For Key to References and Abbreviations See Page 81.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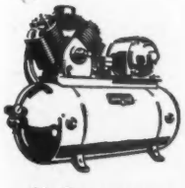
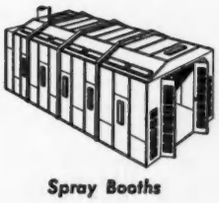


Air Compressors

Hose and Connections

Spray Guns



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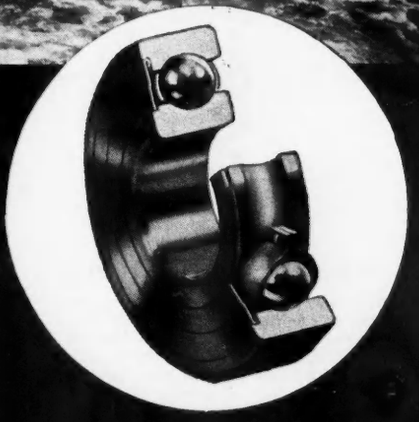
DEVILBISS

(Continued from Page 94)

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	(Gross Vehicle Weight for Normal Service)	Chassis Weight (See definition)	TIRE SIZES Standard Front and Rear	TIRE SIZES D-dual rear S-single rear Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings Number Diameter and Length	Governor Standard	TRANSMISSION Make and Model	Forward Speeds	REAR AXLE Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE Make and Model	SERVICE BRAKES Make Location Type Operation	SERVICE BRAKES Lining Area	SERVICE BRAKES Drum Area	SERVICE BRAKES Drum Material	BRAKES Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME Side Rail Dimensions	FRAME Type
1	Ward La Fr. DITT		180	220	39500		10.00/20	11.00/20	Con T6427	6—4¼x4½	427		340	152–2600			Fu 5A4834															
2	D2KT44		180	220	39500		10.00/20	11.00/20	Wau 140GK	6—4¼x4½	525		425	165–2400			Fu 5C654															
3	D2ET44		180	220	39500		10.00/20	11.00/20	Wau 140GZ	6—4¼x4½	554		438	184–2400			Fu 5C654															
4	D3T44		180	220	39500		10.00/20	11.00/20	Con R6572	6—4¼x4½	672		540	206–2600			Fu 5C654															
5	D3ET44		180	220	39500		10.00/20	11.00/20	Con H6602	6—4¼x4½	672		500	150–1800			Fu 5C722															
6	(D) D3T44		180	220	42000		11.00/20	11.00/20	Cum HRB600	6—5¼x6	743		540	165–1800			Fu 5C722															
7	(D) D3NT44		180	220	42000		11.00/20	11.00/20	Cum NHB600	6—5¼x6	743		540	200–2100			Fu 5C724															
8																																
9	White-Freightliner (c.o.e.) WF64		170			13800	10.00/22		Cum NHB	6—5½x6	743	13	575	200–2100	7—4½x16½	Y	Spl 8041	12	Own													
10	(c.o.e.) WF64T		154			14000	10.00/22		Cum NHB	6—5½x6	743	13	575	200–2100	7—4½x16½	Y	Fu 10B1120	10	Own													

Wherever "Specs" call for DEPENDABILITY...

BCA BEARINGS are the standard



The U. S. Army Ordnance Corps' "Eager Beaver" is a truck that has weathered the worst — deep water, mud, heat, cold, dust, steep grades, rocky roads.

Built by Reo to specifications that are really tough, every part of these trucks was selected to withstand the most severe kind of beating. That's why BCA Bearings "or equal" were specified by the Spicer Division of Dana Corp., suppliers of the transmissions and clutches.

BCA Bearings are *performance proved*. They have an enviable record for dependability, economy and long-life ... they are original equipment on many trucks, buses, cars and tractors ... they are the *first choice* of design engineers with critical specifications.

Whatever your bearing requirements — transmission, clutch, differential, wheels, generators — specify the best ... BCA Bearings.

BEARINGS-COMPANY OF AMERICA
LANCASTER, PA.

Makers of a complete line of Ball Bearings for all makes of cars, trucks, buses and tractors.

Viscosity, Viscosity Index and Pour Point

Continued from Page 55

These crystals grow in size and form a lattice which effectively impedes the flow of the still fluid part of the oil. This property is commonly measured and specified by the ASTM pour point test which defines the lowest temperature at which the oil will move when it is chilled without disturbance under definite prescribed conditions. Specifications frequently require the pour point of a lubricating oil to be 10 deg. F. below the lowest expected atmospheric temperature.

Fig. 2 is another example of the viscosity—V.I. relationship. In this example three oils of different Viscosity Indices have been blended to have the same viscosity (30,000 S.U.S.) at 0 deg. F. Assuming all had sufficiently low pour points, all would have the same cold starting characteristics and could be branded 20W. How will these oils perform after the engine reaches operating temperatures? In this example 350 deg. F. is used as a conservative representative temperature for the ring belt area. The differences in viscosity for the three oils at this temperature are significant. The results from the many road and field tests conducted by various oil company laboratories generally conclude that the viscosity of the crankcase oil as about 350 deg. F. is an important factor in determining the oil consumption of the engine. From these studies it generally follows that under similar conditions the oil consumption will be greater for the low viscosity oil than for a higher viscosity oil assuming, of course, that both oils are within the limits required for good lubrication and those limits imposed by piston ring and other design factors.

To summarize the flow characteristics of a crankcase lubricant which concern a fleet operator:

1. The Society of Automotive Engineers has classified crankcase lubricants in terms of viscosity only. Other factors of oil quality are not considered. To comply with the new standard, most oil companies will require only minor alterations in their motor oils' viscosity characteristics. Continue to use the SAE grade specified by the engine manufacturer. His experience dictates the "size" oil that best fits his engine.

2. There will be less change in the flow characteristics of a high V.I. oil compared to a low V.I. oil over a wide temperature range. When operations are such that oil temperature variations are extreme, all other factors being equal, many authorities believe a high viscosity index oil will generally give better performance.

3. Saybolt viscosity values at low temperatures are indicative only of an oil's viscous drag during cold starting. If at low temperature the oil solidifies and does not flow to the bearings, serious damage will result, regardless of all other qualities that the lubricant might possess. Most authorities recommend that the pour point of a lubricating oil be 10 deg. F. below the lowest expected atmospheric temperature.

END

Please Resume Reading Page 56

What's Your Fire Protection Problem?

Fire protection goes beyond vehicles alone. It must extend to the shop itself and its equipment, gas and oil stores, emergency cars. Pyrene* can provide exactly the right type of extinguisher for all your needs—because there's a Pyrene for every fire hazard!

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PYRENE VAPORIZING LIQUID

Finest all-around extinguishers money can buy. Safe for electrical fires. Effective on oil, grease, and other flammable liquid fires. Can be immediately refilled. 1 qt., 1½ qt. pump types; 2 qt., 1 gal. pressure types. (Specially constructed shock absorbent vehicle type gives at least twice the service life.)

C-O-TWO DRY CHEMICAL†

Snuff out flammable liquid and electrical fires with light, clean, free-flowing powder. Rechargeable. Non-conducting, non-corrosive, non-abrasive, non-freezing. Activating mechanism totally enclosed; squeeze type discharge nozzle; hose and nozzle empty until operated; no syphon tubes to become clogged. 4, 20, 30 and 150 lb. sizes.

C-O-TWO CARBON DIOXIDE†

Carbon dioxide kills flammable liquid and electrical fires in seconds, then disappears without a trace. Non-damaging, non-conducting. Harmless to metals, finishes, fabrics. Squeez-Grip valve . . . simply squeeze to discharge extinguisher, release to close. 2½, 5, 10, 15, 20, 50, 75 and 100 lb. sizes.

PYRENE CHEMICAL FOAM

2½ gal. size produces about 22 gals. of fast-acting foam. Ideal for oil and all other flammable liquid fires, as well as paper, cloth and all other ordinary combustible hazards. New, stronger stainless steel welded or seamless copper shell. For non-freezing locations. Also 40 gal. size.

†Made by the Pyrene affiliate, C-O-Two Fire Equipment Co.

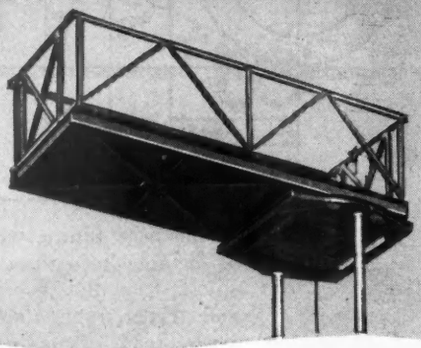
There's a Pyrene for every fire hazard

PYRENE MANUFACTURING COMPANY

589 Belmont Ave. Newark 8, New Jersey

Which is more important, getting this truck loaded or Miss America's dimensions?

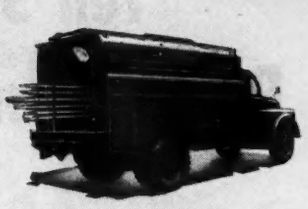
"The Accepted Standard with Utilities Everywhere"



Proved by many years of trouble-free service, *Powers-American* bodies set the pace as the number one choice with utilities everywhere . . . the measurement of top quality and performance throughout the industry. "Job-engineering" steps up crew efficiency, lowers operating costs . . . protects your investment. *Powers-American* has the type body and equipment to do your particular job most efficiently and at lowest cost.

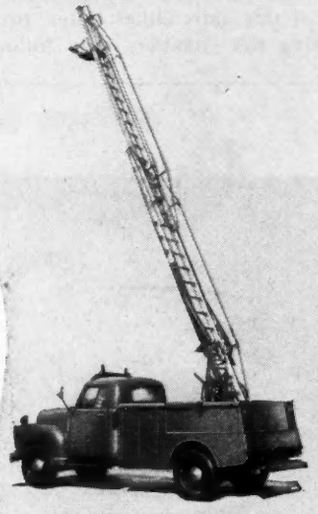
HYDRAULIC TOWER

Platform extends to 30′ above ground and can be revolved full 360°. Operation is controlled from truck cab or by workman on platform. Models are also available in ground-to-platform heights of 21′ and 25′ for installation on chassis having a rated capacity of 1½ tons or more.



LINE CONSTRUCTION BODY (600)

Available in 9′ to 14′ lengths, equipped to meet individual needs in any phase of utility work.



REVOLVING AERIAL LADDER

Models available in working heights of 23′ 6″, 26′ 6″, 30′ 6″, and 32′ 6″ for all styles of bodies.

LIGHT CONSTRUCTION BODY (SERIES 35)

Ideally suited for all types of light duty maintenance and construction work.

MAINTENANCE BODY (400)

Designed for medium duty general service. May be furnished with winch and derrick capable of handling 40′ poles.

POWERS *American* DIVISION

AGB

PUBLIC UTILITY BODIES AND EQUIPMENT

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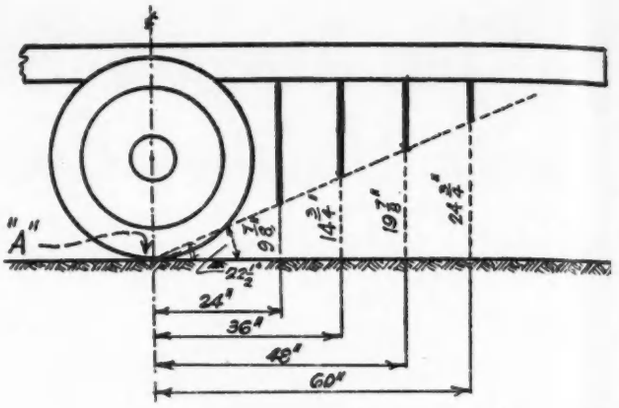
There are many styles of *Powers-American* Bodies not shown here. Write for descriptive catalog today.

Ten States Require Fender Flaps



MUD GUARDS, splash guards, fender flaps—regardless of what they are called, they spell a "must" for the fleetman operating in at least ten states as of this date. Other states, presently eyeing the situation, may follow suit in the near future, with the intention of helping to reduce road spray or splash from the rear wheels of truck and trailers operating over wet and sloshy roads. Ten states have decided that fender flaps, properly located behind the rearmost wheels of commercial vehicles, will prevent if not eliminate the fogging of windshields on vehicles following our trucks. Specifications set up in individual states, while they vary appreciably, outline a fender flap of such length and position that it intersects the hypotenuse of a right triangle drawn as shown in this sketch. Standards set up here describe the requirements of a new Pennsylvania law effective on the first day of the 1952-53 license year.

Under this formula the clearance required between lower edge of fender flap and under side of body is based on a 22½-deg angle at the intersection of the road and the vertical center line of the tire at point "A". Various positions of wheel flaps with their corresponding lengths, in conformance with this formula, are listed. For lengths of wheel flaps other than shown, the distance in inches from center line of axle to the position of the flap should be multiplied by constant 0.4142 to get the vertical distance in inches from road surface to bottom of flap. It should be noted here that in cases where the body line extends out beyond the intersection of the hypotenuse of this angle with the body line, flaps will not be necessary.

Here are actual specifications for the states of Ohio and Pennsylvania:

Horizontal distance "A" to flap	*Vertical clearance from road surface to flap*	
	Penna.	*Ohio*
24″	9 7/8″	4 4/5″
30″	12 3/8″	6″
36″	14 3/4″	7 1/5″
40″	16 1/2″	8″
42″	17 3/8″	8 2/5″
45″	18 5/8″	9″
48″	19 7/8″	9 3/5″
50″	20 5/8″	10″
55″	22 3/4″	11″
60″	24 3/4″	12″

Here is a brief summary showing requirements of other states:

(TURN TO PAGE 102, PLEASE)

Your Own Experience Tells You . . .

The Thermoid Name Means Top-Quality

When you see the Thermoid name on brake lining it is your assurance that the brake job will be right the first time.

It's the same with Hydraulic Brake Parts

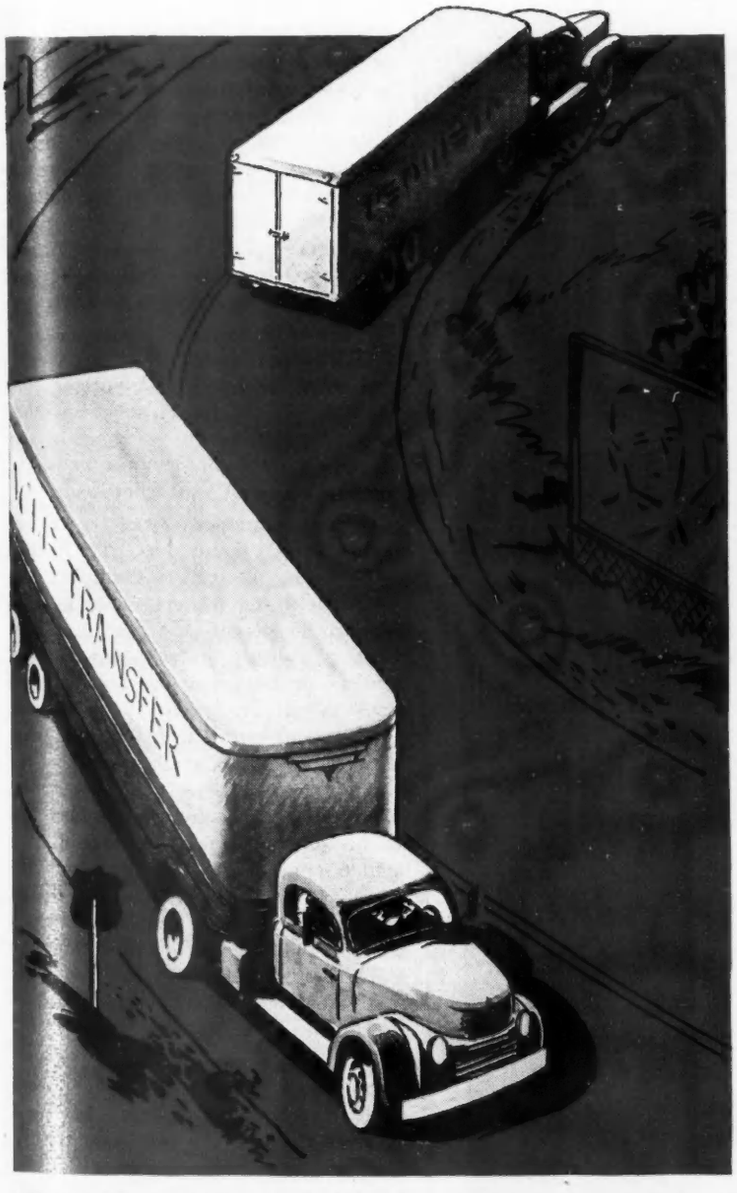
Always use genuine Thermoid hydraulic brake cylinder assemblies for complete replacement or Thermoid brake cylinder repair kits and parts for precision brake service.

Thermoid

the standard of precision processing in brake lining; brake blocks; hydraulic fluid; cylinder assemblies; hydraulic brake parts.

Thermoid Company • Trenton, New Jersey

It Pays to Convert to Phillips 66 Philgas*



Get more miles per dollar with this clean, low cost fuel!

WORTH WHILE SAVINGS. At today's low prices, Philgas propane fuel, now available from Phillips Petroleum Company, offers substantial savings for truck owners. And Philgas is 100 octane plus. It burns smoothly with sustained power!

MAINTENANCE. You can expect twice as many miles between engine overhauls because Philgas burns *clean!* No cylinder wall washing. Long ring life. Low cylinder wear. Saves on oil consumption, too.

EASY, SAFE HANDLING. Automatic, completely enclosed filling systems eliminate the overflow, spillage and evaporation losses common with other types of fuel. And Philgas burns without smoke or smelly exhaust odor.

AND REMEMBER—Philgas can bring you these advantages at low cost per mile compared to gasoline or diesel fuel.

LUBRICATION . . . a tried and proven companion product—Phillips *66* Heavy Duty Motor Oil—is highly recommended to give you full advantage of savings made possible by Philgas.

SAVINGS can often pay the cost of converting in a few months. Phillips Petroleum Company pioneered the use of propane in engines. Our years of experience can save you time, expense and problems in planning and carrying out a conversion to Philgas. Ask to have a qualified Phillips engineer talk things over with you. No obligation, of course. Write, today!

*Philgas is the Phillips Petroleum Company brand name for its high quality butane-propane LP-Gas or bottled gas.

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Ten States Require Fender Flaps

Continued from Page 100

California requires every motor vehicle, trailer or semi-trailer, except vehicles exempt from registration and vehicles of an unladen weight under 1500 lbs., to be "equipped with fenders, covers, or devices, including flaps or splash aprons," unless the body of the vehicle affords adequate protection to effectively minimize the spray or splash of water or mud to the rear.

Illinois requires all motor vehicles of the second division (i.e., all vehicles except passenger cars) to be equipped with rear fender splash guards after July 1, 1952.

Minnesota requires after January 1, 1952, every truck and semi-trailer which is not equipped with rear fenders by the manufacturer, to be equipped with wheel flaps behind its rear wheels. The specifications and placement of such flaps shall be set forth by the Commissioner of Highways.

New York requires every truck, trailer or semi-trailer manufactured or assembled after January 1, 1953, to be equipped with splash-guards covering the rear wheels.

Ohio requires every truck, trailer or semi-trailer with a gross weight over 3 tons, and used to transport goods or property, to be equipped "with suitable metal protectors or substantial flexible flaps on the rear-most wheels," unless equipped with fenders or body construction is such that dirt, water or other materials are prevented from being thrown on the windshilds of following vehicles. Such protectors or flaps shall have a ground clearance of not more than one-fifth of the distance from the center of the rear-most axle to the center of the flaps under any conditions of loading and shall be at least as wide as the tires they are protecting.

Oklahoma requires all trucks, trailers and other vehicles not equipped with fenders over the rearmost wheels shall have attached thereto a rubber or fabric splash apron, of such size as to prewent splashing of mud from roadway.

Oregon requires every motor vehicle, motor truck, motor bus, bus trailer, semi-trailer, or trailer, including logging trucks and trailers, excepting motor truck chassis not equipped for hauling a load, to be equipped with fenders or covers which may include flaps or splash aprons. Such fenders shall extend in full width from a point above and forward to the center of the tire of the rear wheel of every truck, bus, trailer or semi-trailer under and to the rear of the wheel to a point that is not more than 10 inches above the surface of a highway when such vehicle is empty. The fenders or covers in every motor vehicle other than the above mentioned shall extend to a point that is not more than 20 inches above the surface of a highway.

Texas requires every road tractor, truck, truck tractor, trailer or semi-trailer (except pole trailers), having 4 or more tires on the rear axle to "be equipped with safety guards or flaps of a type of material and construction prescribed by the department, located and suspended behind the rear wheels to within 6 inches of the surface of the highway."

Washington requires every vehicle to be equipped with "a device adequate to effectively reduce the wheel spray or splash of water from the roadway to the rear thereof."

SIMPLE design—easy application—strong, durable construction—give Hansen Hardware its ability to stand up under severe service conditions.

Hansen products illustrated include:

No. 10 Continuous Hinge. Made in standard 12-inch lengths. One length provides hinges of **all** lengths. Made of .078 gauge steel. 1/4" hinge pin. Wt. 1 1/4 lbs. ea. 12" unit. 12 units per box.

No. 60 Extension Lock. Made in one piece. No loose parts. 1 1/4" hardened striker bolt. Matched rosettes. Strong. Neat. Attractive. Size, 5" x 10". 5" handle. Wt. 2 5/8 lbs.

No. 85 Window Regulator. Straight-up lift. No sticking or jamming. Easy, fast operation. Endless chain. Right- or left-hand application. Crank or wing types. Five lengths, 22"-30".

No. 125 Slam-and-Take-up Lock. For side or rear double doors. Left-hand side includes bolt with hook. Right-hand side of lock includes striker bolts, center mechanism and 26" rods. Flush or offset bolts, as specified.

Lower upkeep invariably comes from using Hansen Hardware —often lasting longer than the body on which installed.

REQUEST CATALOG GIVING COMPLETE INFORMATION

A. L. HANSEN MFG. CO.
5047 RAVENSWOOD AVE., CHICAGO 40, ILL.

Capital Transit "Housecleans"

Continued from Page 61

etc.; and a carboy carrier. This bus now is the home of the Cleaning Gang and the means of transporting itself and its supplies from place to place.

There are 12 men and one supervisor assigned to this gang. Ten of the men are on full-time cleaning, one on full-time painting and one on part-time cleaning and part-time painting.

The gang functions something like this:

The cleaning supervisor contacts a garage foreman at least two days prior to the time he is expected to arrive at his garage. He makes certain that ample space and other needed facilities are made available; that necessary supplies are on hand; and that plans are made for putting the buses to be scrubbed in tripper service. Upon arrival at the location, the cleaning gang's bus is parked at a designated point and the gang goes to work.

Each Cleaner a Specialist

EACH man has been trained to do only specific jobs. Three of the men, as an example, do nothing but clean headlinings. Two of the men do nothing but clean window sash frames. One man does nothing but clean interior lamps and lamp frames. And so forth.

The full-time painter simply touches-up the interior. He does the necessary masking and paints rusted stanchion fittings, parking brake handles, shift levers, step-wells and wheel wells. The part-time painter assists the full-time painter when the painting load increases.

New Cleaning Compounds Tried

LARGE amounts of time and energy have gone into the engineering of cleaning materials, tools and methods, to the point where Capital Transit has almost finalized the important features of the plan. As an example, it was formerly a practice when cleaning window sash metal, roof ventilators, etc., to use steel wool and a scouring cleanser. This method has been replaced by the use of a liquid cleaner which is painted on the surface and allowed to set. When wiped off with a moist rag, it removes the dirt. Results of this cleaner are shown in Figs. 1, 2, 3, and 4.

Fig. 1 shows the type of dirt accumulated along the top rail of a window sash which, in Fig. 2, has been removed by the method described above.

Fig. 3 shows a bad accumulation of lint, dirt and grease in the ventilator, stanchion fitting and lamp fixture. By dramatic contrast, Fig. 4, taken in another bus shortly after cleaning, shows how the brilliance of the original finishes was restored by the method and material mentioned above. This illustration also shows the result of a quick touch-up job on the head-lining molding after the cleaning operation.

Large volumes of water on the interior of coaches are certainly conducive to accelerating plywood floor disintegration, as well as loosening of the floor covering material. But the first time the coach is given this intensive, concentrated interior scrubbing, the floor is flushed-out with a hose. The rear wheels are raised on large blocks, as shown in Fig. 5, and the hose directed towards the front, where, with

(TURN TO NEXT PAGE, PLEASE)

THE

BIEDERMAN

TRUCK

An All-Star Truck
Constructed of All-Star Units
Doing an All-Star Job Since 1920

DEALERS: Compare the Biederman National Standard Model with any truck on the market and you will agree that it is an All-Star team in itself.

Only the most sturdily constructed units of America's leading manufacturers are built into it.

Biederman Trucks win by performance. Inquiries regarding dealership solicited.

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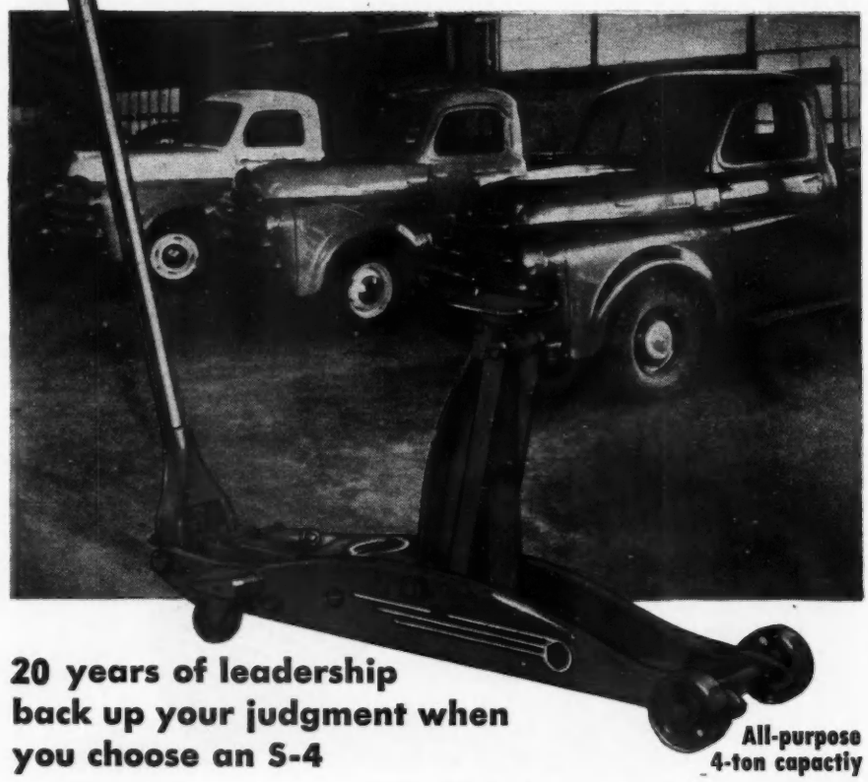
BIEDERMAN MOTORS CORPORATION

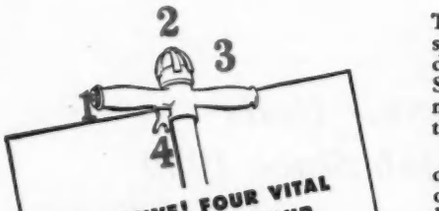
CINCINNATI 14, OHIO

S-4... GREATEST 'NAME' IN SERVICE JACKS



20 years of leadership back up your judgment when you choose an S-4

All-purpose 4-ton capacity



EXCLUSIVE! FOUR VITAL CONTROLS AT YOUR FINGERTIPS

Count 'em! (1) Press the button and you flash a beam of light on the lift spot; (2) turn a key and you lock or unlock the valve; (3) twirl the knob for positive release valve action; (4) pull the trigger and you set the handle for any one of three convenient positions.

Take a look at *the best known* piece of service equipment in the motor vehicle industry! It's the Blackhawk 4-ton Model S-4 Hydraulic Jack. It's the jack that shop men have rightfully learned to *trust* more than any other jack on the market.

This brute was years ahead when introduced in 1931. No other jack has ever caught up to it. Blackhawk has continually added outstanding, exclusive refinements ... so that today, as before, the S-4 is the best all-purpose jack you can roll onto your floor. Your Blackhawk Jobber will deliver one to you — *with full confidence!*

Break Expensive Bottlenecks! Equip Each Mechanic with His Own Jack

BLACKHAWK

Blackhawk Mfg. Co., Dept. J-11121, Milwaukee 1, Wis.

"PORTO-POWER" • "RECK-RACK" • JACKS • WRENCHES

Capital Housecleans

Continued from Page 105

the front door open, the water is quickly and completely forced out.

Inspection Follows Cleaning

AFTER the coach is competely scrubbed, it is carefully inspected by the cleaning supervisor. Where bell cords are worn or loose, or where screws are missing, seat covering material torn, or other small, interior body imperfections—which can be handled by the local garage personnel—are noted, these are reported on a form provided and given to the garage foreman; so that he may have corrective action taken immediately.

Likewise, before a cleaned bus is allowed to go on the street, the step treadles are opened, blown-out and cleaned by the garage maintenance personnel.

At this writing, Capital Transit has completely cleaned approximately 85 per cent of the entire fleet. It is planned that upon completion of the fleet, the first group of buses scrubbed by the Mobile Cleaning Gang will be rescrubbed and, from there on, the cycle continued.

The second time around, however, it is planned that certain additional operations will be performed. It is planned, as an example, that the gang also will paint bumpers, wheels and, perhaps, do other exterior touch-up work.

Average of 15 Cleaned Daily

THE rate of production, originally, was from four to six buses per day. Currently from 14 to 16 buses per day are cleaned, and this rate will be appreciably increased after the fleet has been gone over a couple of times.

It is felt that the Mobile Cleaning Gang will be able to take care of all bus interior scrubbing, excluding the so-called "running" cleaning.

Any success attributed to the system can be laid to two important items: (1) Continuing research into methods, materials, and special tools; and (2) Constant full-time supervision with specific orders being given to keep the Cleaning Gang cleaning on a full-time basis.

END

Please Resume Reading Page 62

"Pyromania?"

SAFETY SADIE SAYS THAT MORE THAN ONE WOMAN HAS STARTED OUT PLAYING WITH FIRE AND ENDED UP COOKING OVER IT.

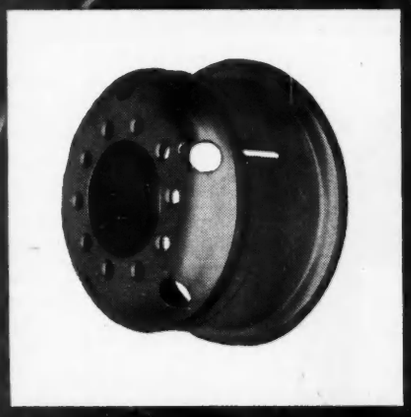
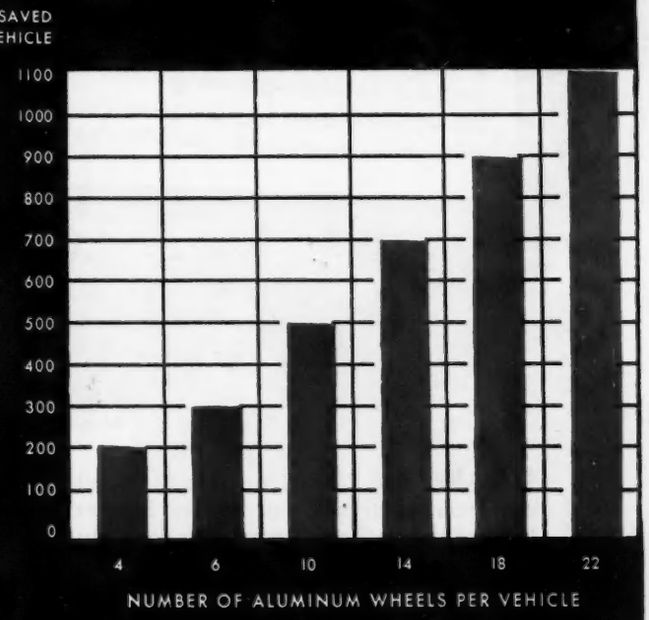


Figure the weight you save

with Alcoa Forged Aluminum Disc Wheels!

Weight-saving with Alcoa Forged Aluminum Disc Wheels adds up fast—and it's all unsprung weight! Each Alcoa Wheel weighs 32 to 50 lbs. less than a steel wheel. By specifying these light, strong wheels, you can save as much as 1,000 lbs. per vehicle—*and add it to payload capacity.*



Alcoa Forged Disc Wheels are precision-made to run true. Tire temperatures are lower, because the aluminum discs dissipate heat rapidly. Maintenance is almost nil. Wheels require no painting. Ordinary washing keeps them bright and attractive.

Rearmament needs now limit aluminum wheel production. But Alcoa Forged Disc Wheels belong in the long-range plans of every profit minded fleet.

Free book to aid your planning— Get full information on Alcoa Forged Disc Wheels—advantages, specifications, installation data. Write: ALUMINUM COMPANY OF AMERICA, 1871 M Gulf Building, Pittsburgh 19, Penna.

ALCOA®

FORGED ALUMINUM DISC WHEELS

Self-Employed Fleet Operator Now Under Social Security

A change in the Social Security law effective Jan. 1, 1951, has brought nearly five million self-employed persons under its provisions. The unincorporated fleet operator is in this group, a category not previously covered by the law. A tax payment of 2¼ per cent must be made. The law makes this payment mandatory, no option is involved.

Considerable confusion may be avoided if the self-employed individual will follow the directions given by the Social Security Administration at the time the law was announced.

Unlike the system used for employees, the payments are not deducted from a salary or pay check and paid to the Administration quarterly. Also, they are not shared by an employer but paid by the self-employed individual himself. Forms will be distributed with the 1951 personal income tax return, and a payment representing 2¼ per cent of all income between $400 and $3600 will be paid on or before the March 15, 1952 income tax deadline.

A social security number will be needed before this return may be completed. To get this number, application forms are available at the local office of the Social Security Administration or at any Post Office.

There are many types of self-employed persons now under the 2¼ per cent tax. Of special interest is the provision that the individual need not have a shop or office of operations. Then, there is no stipulation as to the size of the operation. In effect, this places the manufacturing plant on a par with the shoeshine stand, if the business is unincorporated, and the proprietor or partners are income rather than wage earners.

Income from self-employment, subject to certain exemptions, means the net earnings derived from a trade or business, covered by social security. The individual who earns more than $400 this way, must make a report. The tax is levied on all self-employment income between this $400 minimum and $3600 maximum. Money above $3600 earned in a single tax year is not taxable under the social security law.

One other point is made, in that these earnings may be from full or part time work. Perhaps an individual is on a salary, then at the end of the year draws from the profits of the proprietorship. His social security tax is paid in the usual manner for the salary he draws from normal operating expenses. But he must also report the profits withdrawn from his business providing that his salary is under $3600. Should his regular salary be over $3600, he need not make any report. However, he must continue to comply with laws concerning the salary he is taking from the business.

Every office of the Social Security Administration will have answers to the problems which this new law may present. It must be borne in mind that this is a law, and that strict compliance with the law is required. Penalties similar to those provided for failure to comply with the regular social security law have been applied to this enlargement of the system.

CLAW
TIRE CHAINS
...“traction insurance” specified by the biggest operators
The bigger the fleet the sharper the eye kept on road schedules and operating costs. Fleet operators with plenty of experience in buying and using tire chains tell us CLAWs not only keep their cars and trucks moving in “rough” weather, but they also stand up under the continual pavement-pounding.
For winter weather traction insurance at low cost per mile, equip all vehicles now with CLAW Tire Chains.

CLAW Tire Chains are made in all sizes to fit all automobiles, trucks and busses. Singles and duals. All feature the easy-on “finger pressure” Blue Boy fasteners.

COLUMBUS McKINNON
CHAIN CORPORATION
General Offices and Factories: TONAWANDA, NEW YORK
Plants at Angola, N. Y.; Dixon, Ill.; St. Catharines, Ont., Can.; Johannesburg, South Africa

THE DISPERSANT ACTION OF HEAVY-DUTY OILS!

EXCLUSIVE WALKER PATENTED LAMINAR CONSTRUCTION NOT ONLY REMOVES ROAD DIRT, METAL AND OTHER ABRASIVES...BUT PROVIDES EXTRA PROTECTION AGAINST CRANKCASE MOISTURE, TOO!

According to eminent authorities, water in the oil from engine "blow-by" can destroy certain of the detergent-dispersant actions of modern heavy-duty oils . . . cause contamination, normally held in suspension, to settle out into the engine.

Walker Oil Filters contain no chemicals. They will not change or remove active detergents. *But most important*, because of the unusual moisture-absorbing ability of the wood cellulose fibres used, Walker Oil Filters actually function to *preserve* these detergent-dispersant properties by *selectively* removing from the oil the water which causes the precipitation.

This *extra protection* against "crankcase moisture" is particularly advantageous in engines with hydraulic valve lifters—which are dependent upon heavy-duty oils for best operation.

Only Walker Oil Filters recognize the "triple threat" of water—the greatest enemy of motor oil and good lubrication. By selectively removing water from the oil, along with ordinary solid contaminants, a Walker Oil Filter not only preserves detergency but helps prevent the *formation* of sludge by keeping the moisture content of the oil below the sludge "danger zone". . . and minimizes corrosive acid wear by absorbing the acids contained in the water removed from the oil.

Give your engines the benefit of *full protection* from all dangerous oil contaminants, including water, by installing a Walker Oil Filter Cartridge.

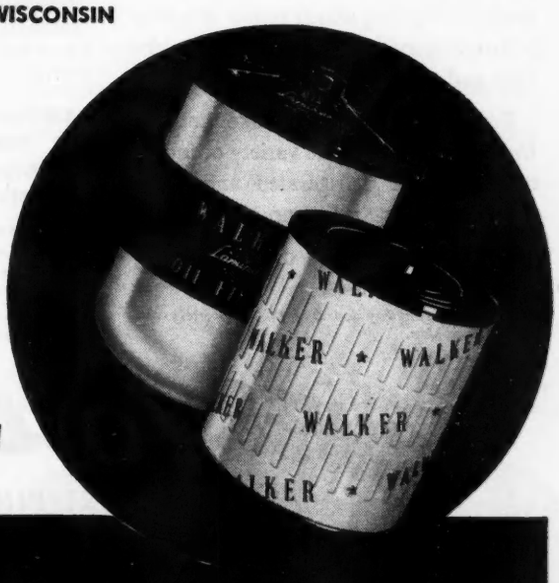
GET IT FROM YOUR JOBBER

WALKER MANUFACTURING COMPANY OF WISCONSIN • RACINE, WISCONSIN

WALKER

OIL FILTERS

WITH PATENTED *Laminar* CONSTRUCTION



S. S. United States ... largest ship ever built in the U. S., third largest in the world. Built at Newport News Shipbuilding and Dry Dock Co., Newport News, Va. Launched June 23, 1951. Length overall ... 990 ft, gross tonnage ... 51,500, total cargo capacity ... 148,000 cu.ft.

how S. S. UNITED STATES makes 48,000 cu.ft. of refrigeration space airtight

This huge passenger liner is assured of airtight refrigeration by the *special, patented construction* of the weather-stripping used on refrigerator doors ... INNER-SEAL*.

INNER-SEAL's made of *live sponge rubber*, which forms a perfectly tight, yet resilient, seal. Slam INNER-SEAL, it bounces back to shape. Does not mat. Will not crack. The *woven spring-wire* flange is so flexible it fits corners like a glove. Final protection is afforded by its waterproof neoprene coating which resists sub-zero or tropic temperatures, grease, oil, sunlight and abrasion.

From giant installations like the *S. S. United States* to a wide variety of industrial uses like refrigerated and other trucks, INNER-SEAL has no counterpart.

FREE samples ... data on sizes, shapes, colors, scores of uses.

**Also used on gangway doors of this completely air-conditioned ship.*

INNER-SEAL weatherstripping on the cab door of this Crosley Pick-Up Truck seals out dirt, moisture, heat, cold, lessens vibrational noises.

STROBOSCOPE OF "JUMP TEST" PROVES INNER-SEAL SEALS TIGHTER, LASTS LONGER!

Springy live rubber is the reason. Action-stopping stroboscopic photos prove it. Both ends of a strip were pressed together, then released ... resulting in the lively spring action you see.

INNER-SEAL Live Rubber

WEATHERSTRIPPING

STAYS LIVELIER LONGER ... SAVES MORE FUEL

BRIDGEPORT FABRICS, INC., BRIDGEPORT 1, CONN.

Introducing ...

... LESLIE NELSON, driver-trainer of the Dan Dugan Oil Transport Co., Sioux Falls, S. D., who will be stationed at the Watertown branch, where he will have charge of driver training and assist with dispatching.

... THOMAS R. GORDON, manager of the Columbus, Ohio, factory branch of The Autocar Co.

... Two executive vice presidents of the Studebaker Corp., P. O. PETERSON formerly vice president in charge of manufacturing, and K. B. ELLIOTT, formerly vice president in charge of sales. Replacing them are E. C. MENDLER, in charge of manufacturing and R. A. HUTCHINSON, in charge of sales.

... L. L. MEIKLE, as president of the Lincoln Engineering Co. of California, in charge of an area comprising the states of Arizona, California, Nevada, Oregon, Washington, and Western Idaho.

... L. C. COLE, a director of the American Association of Advertising Agencies, appointed director of sales for the National Motor Bearing Co., Inc., Redwood City, Calif.

... JULIUS H. NILL, appointed southern regional manager, Metallizing Engineering Co., Inc., with offices at New Orleans, La.

... CHARLES D. McCALL, general sales manager of the New Departure division of General Motors Corp., Bristol, Conn., replacing FRANK J. MILLER, who retired because of ill health.

... R. A. D'AMOUR, assistant regional manager of the Washington, D. C. Region, Cummins Engine Co., and JOHN W. POST, regional manager of the division; G. W. PLONDKE, assistant regional manager of the Central Region with FRED W. HARTMAN as manager.

... E. M. YOUNG (Left) as manager of Mack Motor Truck Corporation's Charlotte (N.C.) district. Replacing Mr. Young as assistant to the Southern division Manager at Atlanta is JOHN STEINHAUER (Right).

THE MASS PRODUCED motor vehicles of today require engine and chassis parts that assure maximum performance and dependability.

For fifty years Thompson Products has been making precision parts for cars, airplanes, buses, trucks, tractors and industrial engines—both gasoline and diesel.

Thompson engineers have perfected such vital engine parts as piston pins for the powerful, dependable aircraft engines that power the planes so vital to our defense. The same metallurgical knowledge and manufacturing know-how are used in making the piston pins for the mass produced automobiles of today.

For engine performance you can take for granted: *count on* Thompson

Along with piston pins, Thompon's Special Products Division makes valve seat inserts and cylinder sleeves for the finest aircraft engines, heavy-duty trucks and tractors, industrial engines as well as for passenger cars.

If you are having trouble with engine parts—if you need a better, more dependable supplier, just write or call Special Products Division, Thompson Products, Inc., 2196 Clarkwood, Cleveland 3, Ohio. You'll soon learn what car and plane makers have known for 50 years—*you can count on Thompson.*

Thompson Products, Inc.

SPECIAL PRODUCTS DIVISION

2196 Clarkwood Rd. • Cleveland 3, Ohio

PISTON PINS • VALVE SEAT INSERTS • CYLINDER SLEEVES • WATER PUMPS • U-FLEX PISTON RINGS • CAST IRON PISTONS • VALVE RETAINER CAPS AND LOCKS

The Driver . . . Key Man in Public Relations

Continued from Page 53

sponsibilities to the community, state, or the nation it serves. It should publicize its aims and objectives. It should point out its position as a social and economic factor in the warp and weft of our economy.

The end result should be the acceptance of that company as a good, needed and respected citizen and neighbor.

The good citizen and good neighbor characteristics of a commercial or industrial enterprise are reflected to a very great extent in the attitude of the employee toward the employer, and the attitudes of both toward the public.

Good Employee Relations First

FIRST, good employer-employee relations go hand in hand with good public relations. If the employee is to maintain or enhance the reputation of his company in the community, he must be made to feel that he is an important member of the team. This may best be accomplished by informing him fairly and fully of company policies and activities.

An employee invests his labor and his future in our business. Hence, he is just as much interested in the security of his investment as are our owners who invest their capital. Furthermore, he is equally entitled to an accurate report on the condition of his investment. The physical plant may be improved, altered or rebuilt to meet changing requirements but, if friendly and honest employee relations are not created and constantly maintained, the enterprise will not be successful.

The responsibility for friendly employee relations cannot be lodged in any one department—it must be shared by every supervisory representative of the employer.

However, the personnel department is the ideal medium to counsel and advise all others, and to devise and direct effective measures to foster and develop harmonious relations. Devoting its time entirely to personnel problems, including this one, it promotes understanding and cooperation by fully disclosing the facts concerning the business and its problems; so that the employee understands the need for contemplated measures to be taken. Being well informed, he is not suspicious of management's motives. Only thus can the loyalty and interest of employees be secured and retained.

Driver Is Key Man

NEXT, isn't it true that the driver of a commercial vehicle potentially is the number one ambassador of good will? Certainly this is true of Railway Express drivers; if for no other reason than that they come into contact with the public more frequently than any other single class of employee.

I have been in the service of my company quite a long time. Over the years, I believe I have learned something of express driver problems. In fact, before the motor truck came into common use, I drove a team in the express business. Even then, the basic problems were essentially the same.

Almost from the inception of the express business, nearly 113 years ago, it has been axiomatic in our business that the driver—the man who has daily contact with the shippers and receivers in the community—is an extraordinarily potent factor in public relations. Our program of driver selection and driver training plus the practice of keeping him informed of company ac-

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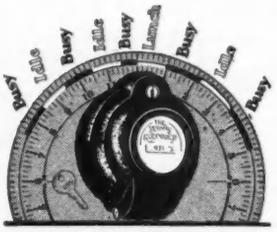
EXPLAIN IT to Your Drivers!



The Servis Recorder

- It's a business machine—and its purpose is not to *detect,* but to *prevent.* It keeps trucks from getting into bad habits.

Put This Poster Up Out Back

—tell everybody concerned just what the *Servis Recorder* is and what it does. It's the moral effect that's important. A "pound of prevention" is worth a "ton of cure"!

(Actual size of poster is 14" x 18")

TO OUR TRUCK DRIVERS

Two Things We Want To Do—

First: We want to stay in business for many years to come, and that means we've got to be as efficient as those we compete against. That means that every truck must produce its full day's work — no more and no less.

Second: We want each truck driver to receive a square deal, in order that so far as possible each truck will do an equal amount of work, and do it comfortably.

All right. There is only one way to do this. That is, to put on each and every truck a recording device so constructed that the truck itself will record just what it did all day. An accurate record— a fair and square report— a record that nobody can question.

Now then, these records will probably show up a lot of standing time on our trucks. But we know that a large part of this idle time is not the driver's fault at all! There are all sorts of causes for idle truck time. Some of these causes cannot be removed, but a lot of them can! And the only way we can find out is by first getting a record of these delays,a record made by the truck itself.

That's why we are putting on Servis Recorders. This Recorder is already in use on more than 70,000 trucks throughout the world. There is nothing mysterious about this recorder. It's on every truck, in plain sight. It merely records when your truck is operating, and when it is standing. If you as a driver are overworked,it will show it. If you are underworked, it will show that too.

The Newbury Co.

Send for this poster. It's FREE.

THE SERVICE RECORDER CO. 1375 Euclid Ave. Cleveland 15, Ohio

IN DENVER the scale tells the tale . . .

Brown trailers weigh 1300 Pounds Less...

Actual Scale Weights of Comparable Trailers			
	BROWN	TRAILER A	TRAILER B
Steering axle	5,000 lbs.	5,000 lbs.	5,000 lbs.
Drive axles	6,780 lbs.	7,350 lbs.	7,520 lbs.
Trailer axles	6,600 lbs.	7,330 lbs.	7,160 lbs.
TOTALS	**18,380 lbs.**	**19,680 lbs.**	**19,680 lbs.**
Brown Trailer		**18,380 lbs.**	**18,380 lbs.**
WEIGHT SAVING on Brown Trailer		**1,300 lbs.**	**1,300 lbs.**

IN DENVER . . . a certified weight comparison on the same scales between a Brown trailer and two other *comparable* trailers showed that the BROWN TRAILER *was* 1,300 *pounds lighter.* The weight certificates are on file to prove our claim that the Brown trailer is lighter than comparable trailers.

But try it yourself on any scale — in any city in the nation. This test will convince you that BROWN TRAILERS are hundreds of pounds lighter than comparable trailers.

Then let your operating figures show how Brown's light weight will build your profit. 1,300 pounds more payload — per trailer — per trip adds up to more profits. To keep profits up when overheads rise — get your trailer weights down — BUY BROWN for:

✓Lighter Weight
✓Bigger Payloads
✓Increased Profits

Brown ALUMINUM TRAILERS

Toledo, Ohio Spokane, Wash.
Distributors in principal cities

The Driver . . .

Continued from Page 114

tivities and policies is designed to promote and sustain that condition.

We have 15,000 drivers among the 53,000 people on our payroll and I believe it may safely be said that most of their problems are the problems of your drivers and of the vast majority of commercial drivers.

The driver is the front-line salesman, the day-by-day contact man. He is the man who must get the business and, at the same time, take complaints about service failures, some real and some fancied, over most of which he would have no control in the first place. The shipper and receiver—in other words, the public—upon whom the driver and his company depend for their livelihood, know that he lacks this control; but to them he is the company.

The average driver of a commercial vehicle is a courteous chap, a run-of-the-mine American, even as you and I. He is instinctively clean in his personal habits, and possesses the very human trait of wanting to make a good impression.

As a rule, he is popular because he has a ready smile, he's helpful, he's earnest and honestly interested in his customers' needs. He knows his business and thinks his company has the finest service or the finest product in the world.

If he works for a carrier, an organization with nothing to sell but service, he realizes that the success of his employer and his own success are to some extent influenced by the impression he makes upon his customers. Without thinking much about public relations as such, by the very nature of things, he instinctivey does that which promotes good public relations. Perhaps no words of mine could as clearly portray what I have in mind as the words of an express driver, in Oklahoma City, who stated his views as follows:

"To the customers I serve, I am Railway Express. My shippers and receivers are judging our entire service by what they think of my own personal actions and attitudes . . . and no one else's.

"There isn't anybody anybody else, for most of my customers. I'm the only member of express they do business with, and I always will be—either myself, or some vehicleman like myself.

"Realizing that—as I suddenly did, the other day—made me stop and think. If I don't put up a good appearance, what will my public think of express! If I don't go after all the traffic I can possibly get, who will?

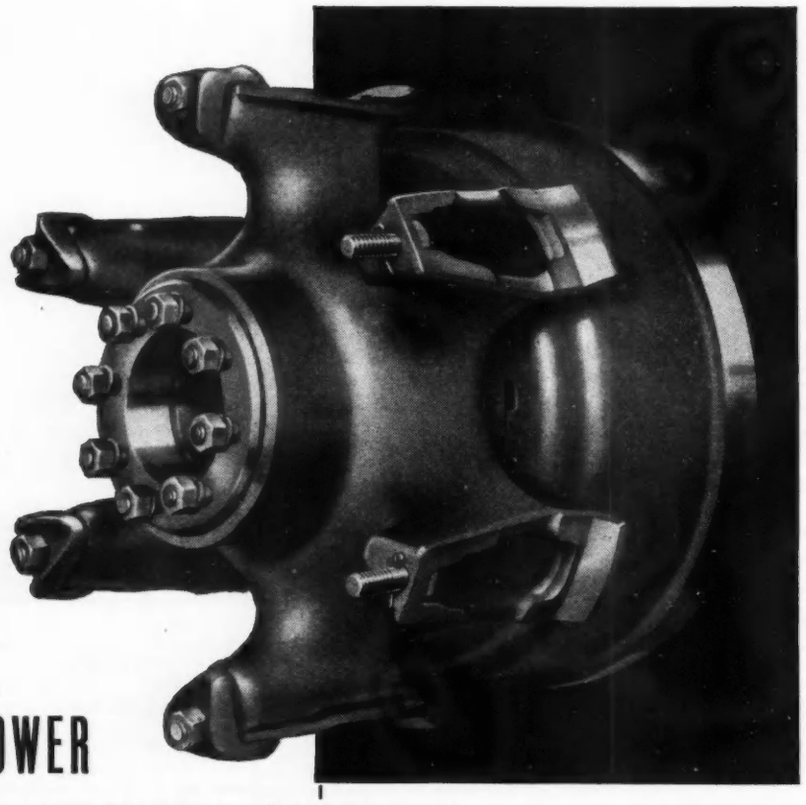
"During my eight years as vehicleman, I've never had a more surprising—yet obvious—discovery come to me: To the shippers and consignees along my route, I'm more than the expressman. I'm all they will ever know first hand of the Railway Express Agency itself."

Problems Vary with Routes

INSOFAR as the express driver is concerned, his public relations problems, though basically unchanged, will vary in detail depending on the size of the city or town in which he is employed. In the large cities, his day-by-day performance will be confined to certain business distrdicts or to certain residential areas, as the case may be. In the smaller cities and towns, the variety of his contacts will be considerably greater.

As he loads his vehicle in the morning, he is quite likely to find such items as a consignment of women's garments for the local department store, already advertised for sale as of that day or the next day; a can of film to be shown at a local moving picture theater that

(TURN TO PAGE 120, PLEASE)



LOWER MAINTENANCE COSTS are yours with

GUNITE

cast-steel wheels

for heavy-duty trucks and trailers

Enjoy lower cost per mile and the superior strength and safety of Gunite Cast-Steel Wheel assemblies on your highway hauling equipment. Lower cost per mile is due to minimum unsprung weight which reduces wheel maintenance and tire wear . . . and to superior performance of Gunite Brake Drums.

GUNITE FOUNDRIES CORPORATION

FOUNDED IN 1854 • ROCKFORD, ILLINOIS

Greater protection for heavy-duty engines with...

New and better... STANOLUBE HD-M REG. U. S. PAT. OFF. Motor Oil

● Take a close look at the pistons shown in these enlarged, unretouched photographs. They give graphic evidence of the superior protection new STANOLUBE HD-M Motor Oil offers in automotive diesel and heavy-duty gasoline engines.

The larger of the two pistons was taken from a diesel test engine after 480 hours operation (the Caterpillar No. 1-A Test) and shows clean, deposit-free ring grooves. The smaller was removed after test in a gasoline engine (the Chevrolet 36-hour Test) and reveals no varnish-like deposits on the piston skirt.

Here's graphic proof of two important properties of this new motor oil: improved detergent-dispersant action and greater oxidation stability.

These two properties, proved by laboratory tests and confirmed in extensive field service, mean superior protection under the most severe conditions of high operating temperatures and prolonged periods of operation. Engines stay clean, free of harmful deposits. The results: longer engine life, more miles and hours between overhaul, and less maintenance . . . even when the going is tougher than ever.

New STANOLUBE HD-M Motor Oil offers these two properties in addition to the same qualities of corrosion resistance and freedom from foaming which helped make STANOLUBE HD a preferred lubricant for heavy-duty applications during the past nine years. To make the best use of this new and better motor oil, ask for the services of the Standard Oil lubrication specialist in your area. Phone your local Standard Oil Company (Indiana) office or write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

RIGHT IN YOUR OWN BACK YARD!

In the Midwest, you can benefit from a service distribution set-up unique in the oil industry—there's a Standard Oil office and warehouse practically right in your own back yard.

Faster Deliveries. You needn't worry about late shipments of lubricants and fuels, and you can avoid the expense and trouble of stocking large quantities of these products.

On-the-Spot Engineering Service. Your nearby Standard Oil service-supply center is headquarters for a Standard Oil automotive engineer. He has been specially trained for his job in a Standard Oil Automotive Engineering School.

To get his help, just phone your local Standard Oil office.

COMPANY STANDARD *(Indiana)*

The Driver . . .

Continued from Page 116

afternoon; a barrel of lobsters for the hotel kitchen, already on the dining room menu for dinner that evening; and a little boy's very pet puppy, just coming home from the place where his master had been vacationing.

In the delivery of three of these items, the garments, the film and the lobsters, there is a certain time limit involvement. The puppy, of course, must be stowed in the load and handled throughout so that he is delivered into the arms of the little boy without harm and resultant heartbreak.

Though the basic principles of good public relations remain unchanged, there are minor differences in the approach or techniques in each of these cases; but, without bothering to think about them, the well-dispositioned driver meets them all in his stride.

Safety Aids Public Relations

NO discussion of public relations, from the driver's standpoint is complete without mention of safety as a very important contributing factor. The driver's first consideration when he reports for his tour of duty must be the condition of his vehicle.

By close inspection, he must assure himself, as accurately as possible, before he leaves the garage, that his brakes, windshield wiper, horn, lights, etc., are in good working condition. He does not do this with public relations in mind. He does it because he knows the truck he drives may easily become a vehicle of destruction. If it is not in good working order in every respect, it is a menace to life and limb, his own included, and to the property of others.

Now, having loaded his vehicle, he is on his way—and on his own. If he is a good driver then, instinctively, he brings into play all of the principles of defensive driving. He knows them by experience and as a result of the constant training you have given him.

Again, he has little or no thought of public relations. But he is a professional driver, proud of his profession, and the end result is good public relations.

It seems to me the importance of safety as a public relations tool cannot be overstressed. our commercial vehicle driver is known to the public generally as "The Gentleman of the Highways." In deed, he has earned that reputation. His contribution to the highway accident record is out of all proportion to the shocking total, and it has gained him the respect and confidence of the public. By the same token, his failures, in either the tactics of defensive driving or the road courtesies for which his kind is noted, are quickly seized upon and subjected to the severest kind of criticism. And the company comes in for most of that criticism.

As stated, Railway Express Agency employs about 15,000 drivers—the number will, of course, fluctuate with seasonal needs. These men are scattered all over the map—at hundreds and hundreds of cities and towns, large and small. To weld together into a smoothly operating organization a group of this size is no easy task, particularly when the men are so widely scattered. We have tried to do it with our safety program. The record indicates that we have had a fair measure of success.

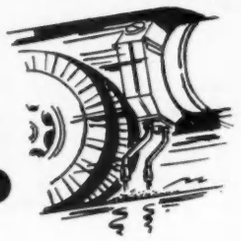
For a long time now, we have had continuous decreases in vehicle accidents—month after month, and in substantial percentages. And early this year, more than 9000 of our drivers received the nation's highest award for professional safe driving—the National Safety Council's Safe Driver Award. These drivers had performed for from one to 16 years without a preventable accident.

(TURN TO PAGE 123, PLEASE)

SANDERS

as dependable as your brakes

AIR and VACUUM OPERATED



"AIR-TRAC" Air-operated Model 50-A

"VAC-TRAC" Vacuum-operated Model 50-V

Proved under all kinds of winter road conditions, throughout the past two years, these "Air-Trac" and "Vac-Trac" sanders *provide traction regardless of weather conditions.*

Compare the value of your shipments and the necessity of maintaining schedules with the small cost of having these sanders to insure over-the-road safety in slippery, icy weather.

Located directly in front of the driving wheels, the sanders — "Air-Trac" or "Vac-Trac" — are actuated by a small valve at driver position. They deliver a generous supply of grit through patented, weatherproof nozzles — in the center of each wheel tread.

May we send you Bulletin 450-L — in the interest of safe travel for your trucks?

THE LINTERN CORPORATION

29-2 RIVERSIDE DRIVE • BEREA, OHIO

The Driver . . .

Continued from Page 120

Driver Training Program

WE also have a very active training program which is carried to all of our people, drivers and others. The training of an employee starts concurrently with his entry into our organization, and continues as long as he remains an employee. Our experience has been that it is a mistake to rely wholly upon the printed word and oral instructions. It is not enough to tell the new man what to do—he must be shown how to do it.

To bring about the best results our training program has been divided into three phases, namely, supervisory training, induction training, employee training.

All training meetings are held on company time, in quarters that are free from outside interference or interruption. Results depend largely upon the trainer, so we exert the utmost care in trainer selection. Training material is furnished by the Department of Personnel and Public Relations to serve as a guide, but it is studied and revised to fit local conditions.

Supervisory training is the most important of the three phases because the effectiveness of the other two is dependent upon how well the supervisor does his job. To the employee, driver or platform man, the supervisor is the company. Because he reflects the policies of management, he must know what those policies are. He must be fully aware of the responsibilities of his job, his obligations to other supervisors, to the public, to the men under his supervision and to the company. Upon him rests the final responsibility for good management—employee relations and morale.

The induction training phase is conducted by an experienced supervisor. It is administered individually or, at our larger cities, to a group of not more than six new employees. It is commenced immediately upon induction and pursued diligently, so that we may get the full benefit of his services if he is an acceptable employee. If he is found wanting, we disapprove his application within the 30 days prescribed by the agreements with our labor organizations.

The employee training phase, beyond that which has been described as induction training, is on-the-job training at spot meetings and under the guidance of the immediate supervisor.

The express driver is exposed to practically all of this training because, as an expressman, there are many things he must know besides the skillful or expert handling of a motor vehicle. However, his training is not confined to the many details of conducting the express business.

He is thoroughly road-tested by competent supervision on every type of express vehicle in use at the location where he is expected to work, and he is not released until that supervisor is satisfied that he knows his stuff. He is examined with regard to his knowledge of motor vehicles generally, and is instructed if he is deficient in that knowledge.

Another supervisor, or older driver recognized for his skill, rides with him until he is familiar with the vehicle, the route to which he is assigned, traffic regulations of the community and the express work he is expected to do.

Finally, his driving habits and general attitudes are observed from time to time, and corrections applied, if and where they are needed.

The driver has many problems beyond those which we have discussed which are reflected in his attitude and have a definite effect on public rela-

[TURN TO PAGE 124, PLEASE]

EASIER, QUICKER WAY TO REBUILD CARBURETORS

Hailed by Fleet Operators & Mechanics

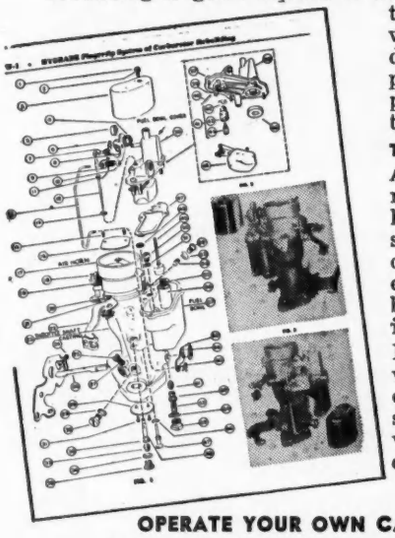
The HYGRADE *Fingertip System*

The Fingertip System makes a carburetor expert out of any competent mechanic in 1 week's time.

Lops as much as 25% off the time sheet for shops that are already rebuilding carburetors.

You'll have real insurance against "down-time" because you *know* that every part that wears has been replaced with a *brand new part* from the Hygrade kit. Without leaving the shop—in a matter of hours—every mechanic can learn to dis-assemble and rebuild a carburetor.

All the mumbo-jumbo that mechanics used to associate with carburetor rebuilding is gone. Packed in every kit are clear step-by-step instructions, arranged in sequence of assembly which tie in with large exploded-view drawings and photos. The location of parts on these pictures is so easy that parts practically fall into place by themselves.



THE HYGRADE FINGERTIP KIT

ALL THE PARTS the mechanic needs for rebuilding a carburetor are literally at his fingertips . . . packed and labeled in separate envelopes for each assembly operation. Work is done step-by-step, envelope by envelope. (As each assembly operation is completed all the parts in that envelope are used up.)

For real insurance against "down-time", write us—giving the make and model of one of the carburetors you use. We will send a sample instruction sheet. Convince yourself by actual test, how easy carburetor rebuilding can be.

SAVE GAS • SAVE ON DOWN-TIME

OPERATE YOUR OWN CARBURETOR REBUILDING DEPT.

with the Hygrade Fingertip System. You save time; you save money; you know the carburetor has been completely rebuilt with brand new parts.

Write today, on your company letterhead, for FREE sample instruction page from the Hygrade Manual.

HYGRADE PRODUCTS DIVISION

STANDARD MOTOR PRODUCTS

35-41 Thirty-fifth Street • Long Island City 1, N.Y.

The Driver . . .

Continued from Page 123

tions, just as they affect his safety record. If his mind is occupied with financial difficulties, sickness in the family or other worries, which plague all of us from time to time, he has two strikes against him as the ambassador of good will.

The time may come in these grave days when our service will again be taxed to capacity. God forbid that there be another full-blown war. But I believe that defense preparations now begun, when they are well under way, will provide business for all carriers.

We have no intention of abandoning, for a single moment, the philosophy that we have a company to keep sold—that we have a tremendous equity in our service to protect. And we will exert every effort to maintain and perpetuate the fine public relations built up over the years. Believe me, the driver's part in that program will not be neglected.

END

Please Resume Reading Page 54

This NEW BOOKLET WILL $AVE DOLLAR$ FOR SUNNEN EQUIPPED SHOPS . . .

Because materials are short and costs are high . . . now, more than ever before, anything you can do to make supplies and equipment last longer is good news to your cash register.

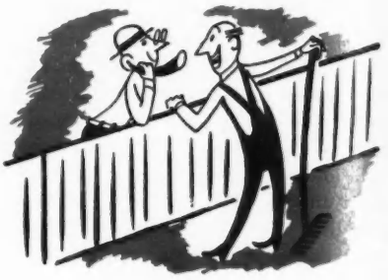
This new booklet is full of ideas and suggestions on how to operate Sunnen equipment more efficiently, and make Sunnen supplies go farther. It can mean considerable savings in your shop.

Write for Your Copy of "SUNNEN SERVICE HINTS"

SUNNEN PRODUCTS COMPANY
7907 Manchester Avenue, St. Louis 17, Missouri
Canadian Plant: Chatham, Ontario

627

LOCAL NEWS



Atlanta, Ga.—Great Southern Trucking of Jacksonville, Fla., has opened a million dollar terminal in the Atlanta area as part of a $10 million expansion program. The terminal will be in two-shift operation handling a gross freight of 1,000,000 lb daily. The vehicle parking area will cover about 11 acres, paved.

Raleigh, N. C.—North Carolina's State Utilities Commission has given the OK to the Atlantic Coast Line Railroad's plan to use trucks to haul freight over areas not served by rail lines.

Lansing, Mich.—Reo truck salesmen from all parts of the country have enrolled in a four-part sales training course designed to broaden the service they offer their customers, and to prepare for a return to a more competitive selling problem.

Denver, Colo., International Harvester Co. has a new truck sales and service building located at 3280 N. Brighton Boulevard. It has 16,000 sq ft of service area with 23 truck-servicing stalls, a showroom, tool and equipment section, and a large parts department, providing the operators in the Rocky Mountain area with day and night service.

St. Louis, Mo.—Yellow Transit Freight Lines has recently opened a new terminal on a 6-acre corner at Chouteau and Spring Aves. It has 24,000 sq ft of dock space, 51 doors, and parking area for 200 vehicles.

Oklahoma City, Okla.—The Transcon Lines terminal is now located on a 4-acre site at 311 S. Western Ave.

New York, N. Y.—Plans have been advanced for a survey of relative quality of repair facilities available to the operators of truck fleets for which privately-owned facilities are not now available. The survey is under the direction of the committee on improved service facilities of the Automotive Transport Trades Council,100 Fifth Ave., H. Franklin Turner, chairman.

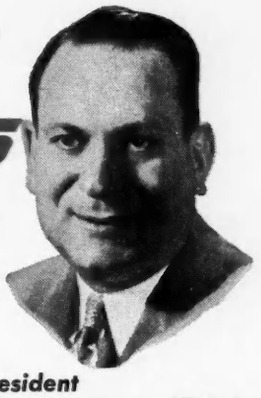
Dayton, Ohio—The Dayton Rubber Co. has placed a nation-wide advertising contract with the Allman Co., Detroit, headed by Leslie C. Allman, former executive vice president of Fruehauf Trailer Co.

Milwaukee, Wisc. — The Milwaukee Traffic Club is offering several scholarships in a course of traffic and transportation management at the University of Wisconsin Extension.

Jacksonville, Fla.—Jacksonville Truck Sales, Autocar dealers has moved to new quarters at 818 Canal St.

"TOTAL TIRE PERFORMANCE COUNTS WITH US . . .

Dayton HIGHWAY Extra Mileage Thorobreds —OUR NO. 1 CHOICE!"



DAVID H. RATNER, *President*
Hayes Freight Lines Inc., Mattoon, Illinois

"WHEN we add up total tire performance — *original miles, number of recaps, recap miles* —cost records tell us that Dayton Thorobreds outperform them all," says Dave Ratner of Hayes Freight Lines. "We figure that Daytons give us one-third more tire for our money — the equivalent of *one* tire free in *three!* Savings like these are important when you realize that our 2000 vehicle fleet — on over 10,000 tires — roll up over 2,600,000 miles every month.

"No wonder Dayton Highway Extra Mileage Thorobreds are our No. 1 choice!"

The Highway Extra Mileage is one of seven *great Dayton Thorobreds* — each engineered for a specific type of trucking service.

Hayes serves over 2000 communities in a five state area that is the heart of industrial America. From a horse and dray beginning, in 1884, Hayes has grown to be one of the nation's top haulers with over 2000 pieces of equipment in service.

DAYTONS COST LESS TO RUN BECAUSE DAYTON BUILDS A *BETTER* TIRE CARCASS

It's easy to understand why Dayton Thorobreds are top performers when you add up features like these:

- ✓ **More Cords *per inch* in each ply.**
- ✓ **More *rubber* and a *more even* insulation coating around each stronger Rayon *Electroni-Cord.**
- ✓ **More *steel wire* in the beads.**
- ✓ **More *material in the plies* that wrap farther around the beads and up the side walls.**

No wonder Dayton Thorobreds are known for their *super-strength tire carcasses.* No wonder Daytons outperform them all!

* *Only Thorobreds are made with Rayon Electroni-Cord . . . the most important tire cord development of the century.*

Dayton Rubber

DAYTON RUBBER COMPANY, DAYTON 1, OHIO

A COMPLETE LINE OF TRUCK AND PASSENGER TIRES—*EVERY ONE A THOROBRED!*

Report of Senate Committee Indicates Trouble Ahead

Late in October, the Senate Subcommittee on Domestic Land and Water Transportation issued its first "Interim Report" on its hearings conducted under Senate Res. 50. While the document does not carry the official approval of the Committee, it certainly indicates the committee's thinking. It further indicates the scope of future legislative attempts already predicted at the next session of Congress.

Space does not permit a full review in these columns, but copies of the 87-page report can be obtained from the U. S. Government Printing Office, Washington, D. C., at a cost of 25 cents.

In capsule form, here are some of its basic contentions. Every truck operator can detect the dangers involved without further editorial comment (the italics are ours):

1. The railroads "are the *backbone* of the American transportation system."

2. "Axle load limits should be fixed by Congress as a prerequisite to the granting of Federal *funds for highway aid*."

3. "Experience has shown that an adequate *pavement surface* to carry passenger cars . . . may be built for a cost of approximately $15,000 per mile. Pavement surfaces for trucks . . . up to 20 tons cost about $46,000."

4. "Generally speaking, the principles applicable to *Government aid or subsidy* to water transportation, apply with equal vigor to Government aid to motor freight transportation."

5. "Primarily Congress must insure that *private carriers* which invade the fields of contract and common carriers be regulated in strict accordance with the true nature of their operations."

6. "While the Congress may not very well forbid *trip leasing*, we are convinced that regulation of the practice of leasing and hiring motor vehicles, at least by common carriers, is not only well within the authority of Congress but is desirable and necessary in the public interest."

7. "We urge that Congress take appropriate steps to restrict the scope of operations of *contract carriers* to that of substitution for private carriage, and that contracts between shippers and contract carriers be subjected to public regulation."

8. "The subcommittee is convinced that the present situation with respect to *exempt carriers* is intolerable . . . the operations of such carriers should be curtailed sharply, limited to carriage from farm or wharf to the primary market, and restricted from competition in the nonexempt commodity traffic market."

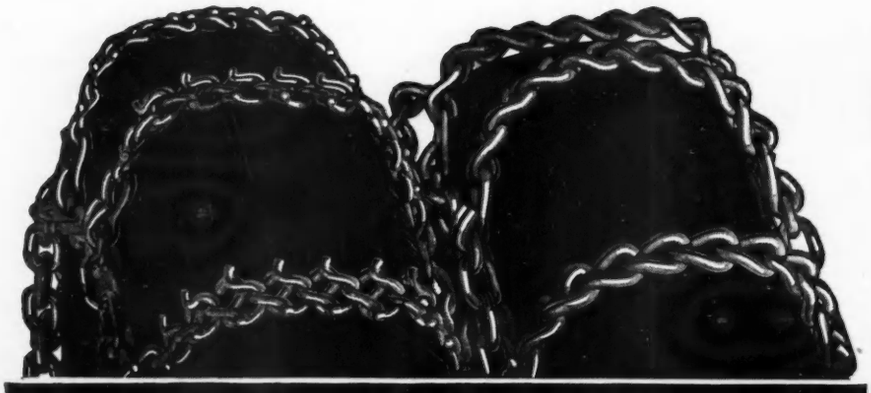
9. "In our opinion, the *crux of the transportation problem* is how to preserve private ownership and management of the indispensable common carriers without discriminating against competing carriers and without revolutionizing the American transportation system."

WESCO
TIRE CHAINS

More Tonnage,
More Miles,
More Urgency

That's the "business forecast" for fleets this winter. Add to that the weather forecast for your territory and multiply it by the number of vehicles in your fleet, and you'll have an estimate of your immediate tire chain requirements. You'll have enough stress and tension this year without lying awake nights wondering if your trucks are still moving. Better equip every vehicle with a full set of good chains now . . . WESCO Tire Chains, of course, for gripping power and long wear.

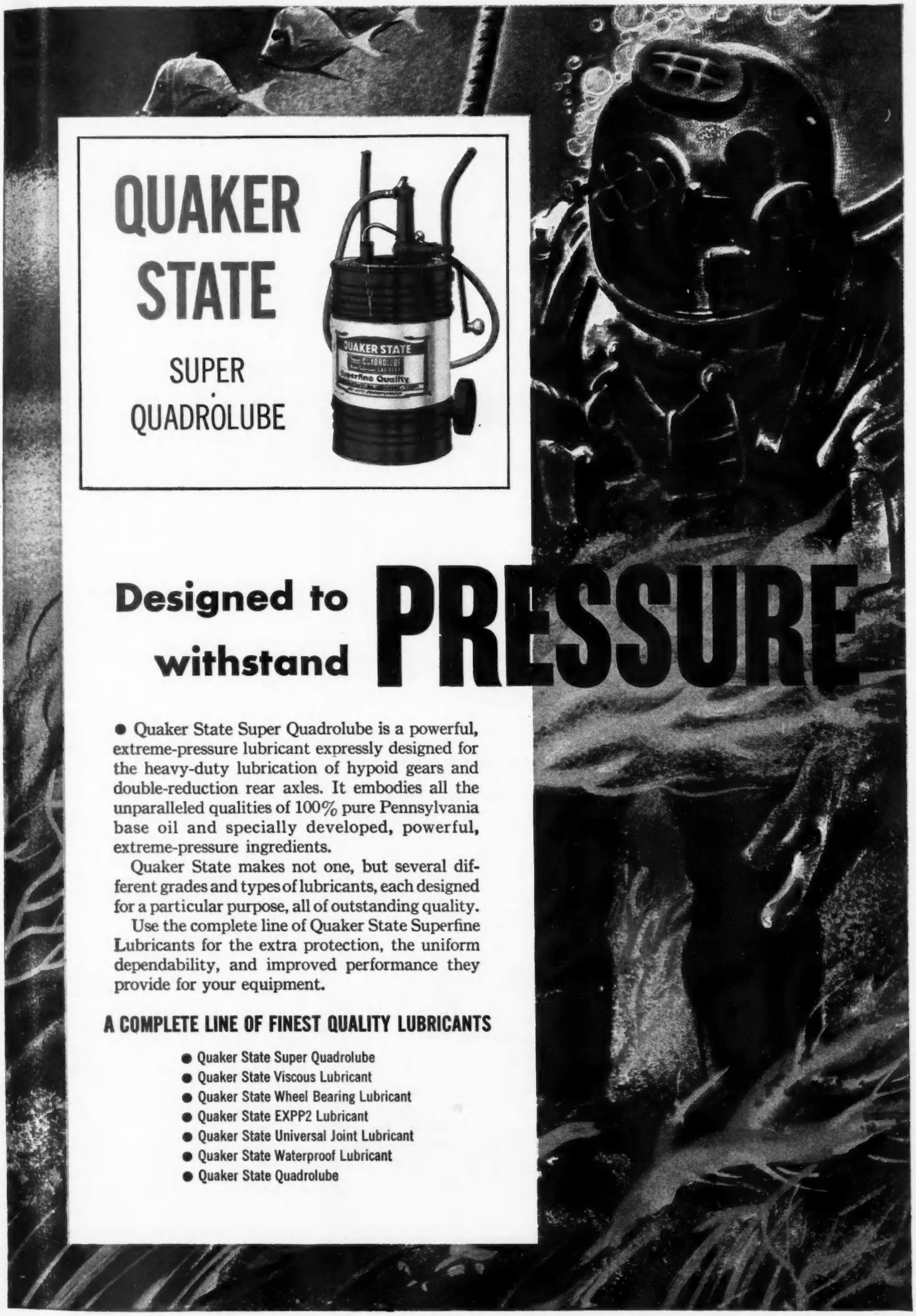
Write for Catalog Sheets



WESTERN CHAIN COMPANY
1801 W. BELMONT AVE. CHICAGO 13, ILLINOIS

WOOF!

Blonde Personnel Clerk: "I was out with an inebriated truck driver last night and I was never so frightened in my life. He headed right for a telephone pole."
Brunette Payroll Clerk: "The dog!"


QUAKER STATE
SUPER
QUADROLUBE
QUAKER STATE
Superfine Quality
Designed to withstand PRESSURE
● Quaker State Super Quadrolube is a powerful, extreme-pressure lubricant expressly designed for the heavy-duty lubrication of hypoid gears and double-reduction rear axles. It embodies all the unparalleled qualities of 100% pure Pennsylvania base oil and specially developed, powerful, extreme-pressure ingredients.
Quaker State makes not one, but several different grades and types of lubricants, each designed for a particular purpose, all of outstanding quality.
Use the complete line of Quaker State Superfine Lubricants for the extra protection, the uniform dependability, and improved performance they provide for your equipment.
A COMPLETE LINE OF FINEST QUALITY LUBRICANTS
● Quaker State Super Quadrolube
● Quaker State Viscous Lubricant
● Quaker State Wheel Bearing Lubricant
● Quaker State EXPP2 Lubricant
● Quaker State Universal Joint Lubricant
● Quaker State Waterproof Lubricant
● Quaker State Quadrolube

SAE National Meeting

Continued from Page 72

ing high schedule speeds. To do this it will be necessary to reduce the performance gap between the highway tractor and the highway motor coach without increasing weight. It will also be necessary for us to provide a simpler means of varying tractive effort necessary to meet changing road and traffic conditions," Mr. Brownyer concluded.

The Transportation Meeting was informed by J. E. Glidewell, of Hall-Scott Motor Div., ACF-Brill Motors Co., that faster and more agile motor trucks are essential to expediting delivery and to maintaining speeds sufficient to prevent blocking the flow of normal traffic. He explained that, particularly in mountainous territory, trucks must have sufficient power and speed to reduce long-haul running time, to keep pace with traffic, and to maintain legal road speeds regardless of heavy grades and loads.

Mr. Glidewell reported that the installation of a Hall-Scott marine engine in a western tank truck-and-trailer combination provided 450 hp and reduced running time by some two and one-half hours on a 320-mile route.

Progress in developing turbine engines for motor trucks was reported by Henry C. Hill, of Boeing Airplane Co., who described experiences in more than a year of operating the Boeing-Kenworth experimental truck equipped with a gas turbine. Explaining that fuel consumption still is high—approximately one gallon per mile—Mr. Hill declared that in other ways the new-type engine is demonstrating marked advantages. From the point of view of the driver, Mr. Hill said, the turbine is a decided improvement over the piston engine, operating with less noise and vibration, functioning without knock on virtually any combination of fuels and lubricants, and providing adequate power and acceleration at all speeds. Furthermore, the performance of a 200-hp engine is obtained from a 175-hp turbine, and gear-shifting is cut about in half. He predicted that fuel consumption can be reduced so that the turbine will produce fuel mileage equivalent to that of other trucks. While the consumption of fuel may continue to be greater than that of comparable engines of other types, he said, the consumption of lubricants is reduced almost to zero. He explained that the oil sump holds only four quarts, and that the turbine has shown almost complete insensitivity to the types and qualities of lubricants, operating equally well on compounded and straight mineral oils and even on automatic transmission oils.

"Our belief," he commented, "is that competitive turbine engines are not far off. Of course, availability for commercial use will depend to a large extent on the military situation. We would like to suggest that if truck operators will make a list of all the improvements they need in a truck engine to overcome existing limitations, and assuming that the fuel consumption and service life position of the turbine is made comparable, then this list will come very close to a tabulation of the characteristics of the gas turbine powerplant."

The problem of designing and developing satisfactory automatic drive mechanisms for commercial and military vehicles was outlined before the Transportation Meeting by O. K. Kelley, of General Motors Corp. He explained that while satisfactory automatic drives can be developed for the relatively simple needs of the passenger car, and diffi-

(TURN TO PAGE 130, PLEASE)

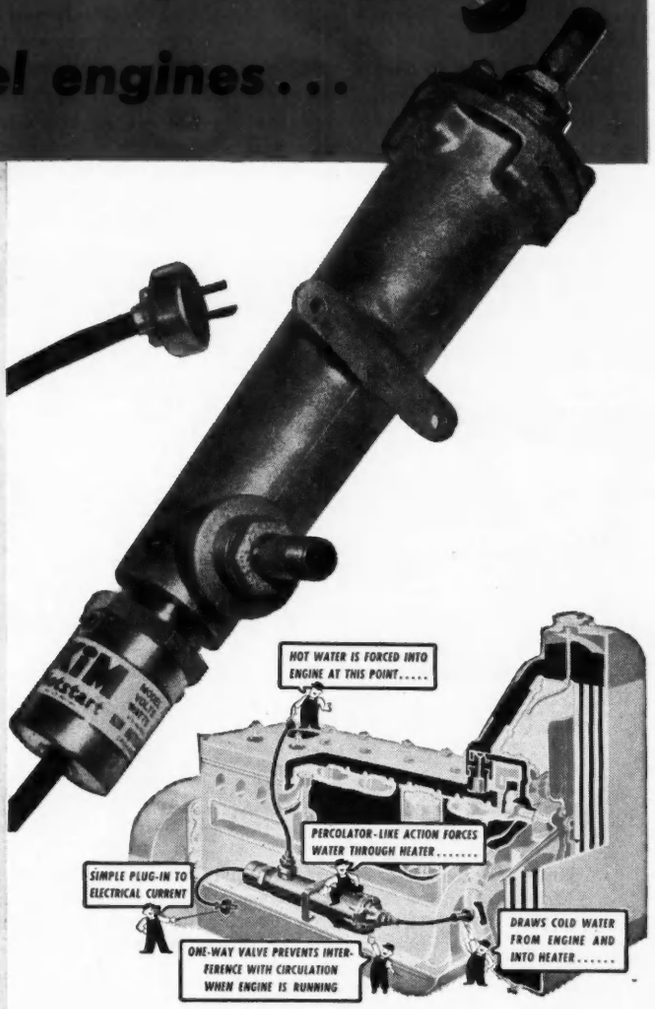
CLASS "A" DIRECTIONAL SIGNALS
Model N107
Model N109
Model N260
For long-lasting, trouble-free performance
The Arrow Class "A" Directional Signals shown above have 4-inch amber sealed-beam units. Baked-on black enamel finish. Available for 6 or 12 volt systems. Model N107 can be mounted on the fender or on the rear of truck or tractor. Model N109 has a recessed body for flush mounting.
See your jobber salesman today for Arrow Directional Signals and the complete line of Arrow Safety After Dark Equipment.
A good signal deserves a good switch. Arrow's N260 is the finest on the market! Built-in flasher, built-in fuse protection, positive proof indication that lights as well as switch are functioning. Unconditionally guaranteed!
Here's a Complete Class "A" Kit
Arrow Kit No. 12 gives you everything you need for the latest approved protection. 2 N107 signals, 2 N109 signals, 1 N260 switch.
safety after dark
ARROW
Arrow Safety Device Company
Mount Holly, New Jersey

Stop Winter Damage

to your gas and diesel engines...

If you haven't yet learned the secret of protecting your engines against cold starts and destructive effects of cold weather, take a tip from the successful operators shown below. They have installed KIM Hotstarts on their equipment, save maintenance and operating dollars in five ways:

1. **Get quick, easy starts in any weather.**
2. **Save warm-up time.**
3. **Reduce engine wear and depreciation.**
4. **Prolong life of batteries.**
5. **Eliminate necessity of heated terminals.**


KIM
Hotstart
HOT WATER IS FORCED INTO ENGINE AT THIS POINT.....
PERCOLATOR-LIKE ACTION FORCES WATER THROUGH HEATER.....
SIMPLE PLUG-IN TO ELECTRICAL CURRENT
DRAWS COLD WATER FROM ENGINE AND INTO HEATER.....
ONE-WAY VALVE PREVENTS INTERFERENCE WITH CIRCULATION WHEN ENGINE IS RUNNING

Join the list of KIM HOTSTART users

Including only a few of thousands of KIM Hotstart users, these names constitute a representative "Who's Who in Proper Engine Care".

Willet Company	*Cudahy Brothers*
Consolidated Freightways	*Boise-Payette Lumber Company*
Jones & Laughlin Steel Company	*Weyerhaeuser Timber Company*
Anaconda Copper Company	*J. Neils Lumber Company*
Carnegie-Illinois Steel Corp.	*Edward Hines Lumber Company*
Inland Steel Company	*Kinzua Pine Mills*
Lone Star Cement Corp.	*Peter Kiewit Sons' Company*
Bethlehem Steel Company	*Morrison-Knudsen Company, Inc.*
General Electric Company	*Western Contracting Corporation*
Public Service of New Jersey	*Granby Constructors*
Dayton Power and Light	*Guy F. Atkinson Company*
Iowa Power and Light	*Shell Oil Company*
Utah Power and Light	*Sun Oil Company*
Washington Water Power Co.	*Phillips Petroleum Company*
Nash-Finch Company	*American Oil Company*
Pet Milk Company	*Tidewater Associated Oil Company*
Armour & Company	*General Petroleum Corporation*
Swift & Company	*Texas Oil Company*

KIM Hotstart

REG. U. S. PAT. OFF.

KIM HOTSTART MANUFACTURING CO.
W. 917 Broadway, Spokane 11, Washington
Please send literature and name of local dealer.

Name_____

Company_____

Address_____

City_____ Zone____ State_____

SAE Meeting . . .

Continued from Page 128

cult engineering problems can be solved to provide automatic drives for military vehicles, the hardest task is to develop automatic drive mechanisms for motor trucks and other vehicles which work for their living and to assure operating efficiencies comparable with hand-operated transmissions. He predicted that the satisfactory drive for trucks will combine a hydro-dynamic unit with Hydro-Matic type gear-ratio so as to take advantage of the principles and the best qualities of both. The fluid coupling was described as providing simplicity, high normal-drive efficiency, and an excellent ability to pick up a load smoothly and automatically. The Hydra-Matic system of planetary gears was said effectively and efficiently to transfer the drive from one ratio to another without interruption of power. The torque converter was said by Mr. Kelley to provide a variable torque ratio hydro-dynamic drive, but with a definite limitation in the fact that the higher the torque multiplication, the lower the efficiency.

"Weighing the pros and cons of the various possibilities," Mr. Kelley concluded, "it is difficult to guess the exact form that the first commercially available highway truck transmissions will have. It seems safe to predict, however, that the design will incorporate a hydro-dynamic unit combined with Hydro-Matic type gear ratio."

Man-made radioisotopes have become important new tools in automotive and petroleum research, it was revealed. The new materials were said to be highly useful in ascertaining the causes and measuring the amount of wear in engines, tires, and even highways, and in revealing physical or chemical action taking place in complicated processes.

Application of radioactive tracer technique to measurement of engine wear was reported by H. R. Jackson, F. C. Burk, L. J. Test, and A. T. Colwell, of The Atlantic Refining Co., who explained that standard piston rings are activated at the Oak Ridge National Laboratory and then installed in test equipment. Wear debris is circulated in the lubricating oil, and the amount of iron worn from the ring may be estimated at any time by a Geiger counter.

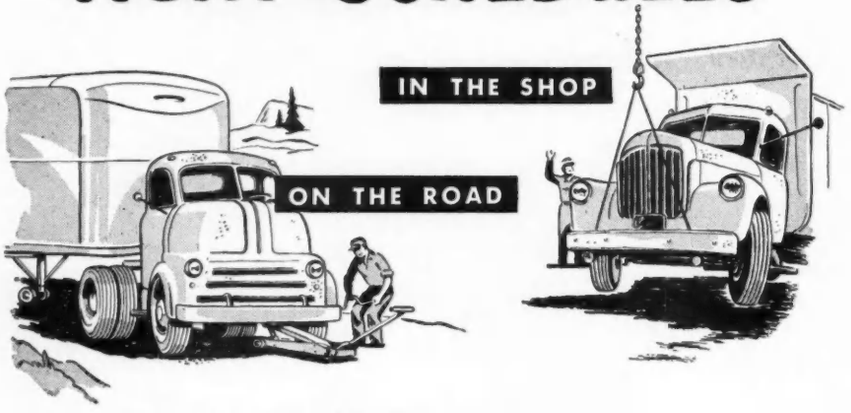
Among the new findings, and confirmation of theories, ascertained by this method they listed the following: Cylinder wall and piston ring wall wear are accelerated when engine water jacket temperatures fall below 150 deg F. Lean fuel mixtures accelerate wear to a large degree because of the formation of corrosive constituents. Even trace knocking will accelerate top-ring wear in an engine. Certain types of oil additives reduce low temperature wear, and were found to be particularly effective in the heavier concentrations. Low temperature wear in engines is greatly augmented when alcohol-gasoline blend fuels are used.

Development of a new-type constant compression engine which reportedly halves fuel consumption and assures operating efficiency throughout a wide speed range, was described by W. H. Paul, of Oregon State College, and I. B. Humphreys, of The Humphreys Investment Co., as a simple variable clearance-volume unit which assures not only high compression at part-throttle, but essentially the same compression pressure throughout the operating range.

The Humphreys Constant-Compression Engine was said to comprise a movable piston unit whose control cylinder is mounted above the power cylinder of a standard engine with the inner end

[TURN TO PAGE 132, PLEASE]

TIGHT SCHEDULES



Call for Quick Changes

with Apco Mossberg RIM WRENCHES

Emergency repair kits and shop tool cribs equipped with Apco Mossberg rim wrenches are your best protection against costly delays in fleet tire changes. There's no time lost locating the right wrench . . . no need for inadequate substitutes.

Available in three popular styles—(1) Two-Piece (2) Four-Way (3) Brace—Apco rim wrenches are steel forged and perfectly balanced to assure maximum overall strength. Extra deep sockets provide a safe, sure grip . . . longer handles add greater leverage, allow sufficient clearance to work on wire wheels and deep hubs with ease.

Don't let time-consuming tire changes hamper your road or shop schedules. Equip your fleet with Apco Mossberg truck wrenches and service tools. Ask your jobber or write direct for catalog and prices on our complete line.

APCO MOSSBERG CO.
187 LAMB STREET, ATTLEBORO, MASS.

First Choice for Quality!

The quality of Delco-Remy electrical units supplied for service is identical with the quality of the units selected as original equipment by leading manufacturers of automotive vehicles.

This *quality* is the fleet owner's protection . . . it is his guarantee of continuing satisfactory performance from his Delco-Remy-equipped vehicles.

UNITED SERVICE MOTORS

DELCO-REMY—A UNITED MOTORS LINE
Service Parts and Delco Batteries Available Everywhere Through UNITED MOTORS DISTRIBUTORS

Delco-Remy

DIVISION, GENERAL MOTORS CORPORATION
ANDERSON, INDIANA

WHEREVER WHEELS TURN OR PROPELLERS SPIN

SAE Meeting . . .

Continued from Page 130

opening into the combustion chamber. The movable piston is attached to a stem passing through a spring-loaded relief valve which, closing the top of the control cylinder, is open to atmospheric pressure. The cavity between the inner crown of the control piston and the relief valve seat constantly is supplied with oil forced under pressure from the engine crankcase by the lubricating oil pump. When the engine idles, or operates at part-throttle, the cavity fills with oil and the control piston moves to its lower position, increasing compression. When the throttle is opened, the sudden piston pressure is communicated through the control piston and to the oil, which escapes through the relief valve, thus relieving pressure. The constant motion of the piston caused by the combination of oil relief and supply maintains both constant compression pressure and constant maximum pressure. Adjustment of the relief valve spring permits operation as a fixed high compression ratio engine at loads less than 30 per cent of capacity.

It was explained that, by providing high compression ratios during part-load operation, the device assures fuel economy during that critical period when fuel consumption normally is higher, and also gives the benefits of both high and constant compression throughout the operating range. Applications to Willys four-cylinder and to Oldsmobile six-cylinder engines were said to have revealed a reduction of approximately 50 per cent in fuel consumption.

Utilization of power-booster fuels for diesel powerplants in trucks provides increased power production when most needed and reduces exhaust smoke, the meeting was told by E. J. McLaughlin, P. L. Pinotti, and H. W. Sigworth, of California Research Corp. They reported that when gasoline or liquefied petroleum gas is injected into a diesel manifold, an immediate surge of power results, enabling drivers to maintain higher road speeds and, simultaneously, reducing the output of smoke from the exhaust.

"Power-booster fuels represent a valuable addition to diesel engine operation," it was explained. "They can be used to increase power without increasing smoke, or to reduce smoke without reducing power. This can be accomplished by using common fuels already in wide distribution, and in existing equipment with only minor modifications."

Employment of heavy-duty, or high-detergency, lubricants is contributing to engine-operating efficiency, especially by promoting internal cleanliness and extending operating periods, according to H. M. Gadebusch, of General Motors Corp., R. T. Karr, of Purolator Products, Inc., and W. B. Bassett, of Lubrizol Corp. They said the detergent oils have also created new problems, such as making the bulk of organic contaminating matter unfilterable and preventing color-clean oil filtration. At the same time, they explained, the new oils have relieved the filtration equipment for the important duty of trapping wear-producing inorganic solids and have permitted the installation of more effective filters. They recommended indications of incipient sludge formation as the best practical signal for need of oil changes.

END

Please Resume Reading Page 74

NEW FROM SPARTON

The greatest air horn of them all for air-equipped trucks and buses . . . from Sparton

Model 270 Air Horn
Compressed-air operated

Extra-rugged, matched pair, same as developed by Sparton for U.S. military vehicles, with a special, powerful *highway* tone for plenty of sales in the big air-equipped truck and bus market. No horn value like it anywhere . . . because it's Sparton. *Order now!*

Makers of Quality Automotive Equipment Since 1900

CHECK THESE SALES FEATURES:

- Requires only 10-100 pounds air pressure to operate.
- Low air consumption—only 6 cubic feet per minute at 100 lbs. pressure.
- Conforms to rigid requirements of U.S. Army Ordnance.
- Factory-tuned and sealed for long life.
- Rugged construction.
- Weatherproof.
- Sturdy control valve gives wide range of sound output.
- Low price.

Sparton
AUTOMOTIVE
Division of
THE SPARKS-WITHINGTON COMPANY | JACKSON, MICHIGAN

Two Sides

THE TRUCK YOU WANT TO SPEED AROUND
HAS TWO SIDES, IT IS TRUE—
THE PASSING SIDE AND SUICIDE.
YOUR CHOICE IS UP TO YOU.

—Omer Henry

Report on Transit Cleaning

Continued from Page 59

the bus cleaning problem to consider:

Frequency of Cleaning

FREQUENCY of cleaning is a function of many considerations.

Anticipated climatic conditions should, of course, be considered. For example, a constantly moist vehicle has a tendency to attract and hold filth. This means that, at the conclusion of a rain storm, this accumulation must be rapidly removed; which sometimes involves whole fleets in the course of a short time.

By the same token, it must be recognized that during dry periods, vehicle exteriors must be cleaned because, when the atmosphere is dry, dust and dirt are attracted to the vehicle's metal surface. In this connection, some people believe that it is the static electricity build-up which attracts dust to these metal surfaces and that, if it were possible to reverse the polarity of the charge on the bus, that the dust would be knocked off.

Build-ups of the type of filth caused by local atmospheric conditions must be considered from both a frequency-of-wash and type-of-cleaning-agent standpoint.

Availability of Personnel

AVAILABILITY of personnel must be considered, *especially* on those properties where individuals responsible for cleaning vehicles do this in addition to other duties; because many supervisors are prone to give cleaning last priority.

In considering the personnel aspect of cleaning as related to the frequency of cleaning, it must be recognized that there are jobs related to cleaning which require recognition for the sake of such a study. I refer to such tremendously time-consuming things as closing windows.

The task cannot be accomplished without considering the physical layout, of course. Automatic bus washing cannot be utilized economically when it becomes a practical impossibility to move the bus to the machine. In this connection, there are currently experimental machines which, in effect, move the machine to the vehicle rather than having the vehicle move to it. Some people attempt to run their vehicles through the machine as they come off the street while others run them through as they go out. There is a great deal to be said in favor of this last method, in that a large saving in labor may be realized by using it.

Special Considerations

SOME vehicles are equipped with ventilators and fresh-air intakes in such a way that precautions are necessary to keep from filling the vehicle with water through these intakes.

Likewise, many vehicle roofs are covered with protrusions of all types including roof ventilators, radio antennas, trolley poles, and so forth, which must receive consideration.

Also, the tendency toward wider and longer vehicles must be recognized so that cleaning apparatus will not be antiquated by these new vehicles.

Types of Finishes

COMMERCIAL vehicle finishes requiring consideration from a cleaning standpoint fall into the following general groups:

1. Lacquers; 2. Enamels; 3. Glass; 4. Plastics; 5. Chromium; 6. Rubber; 7. Treated Fabric.

By far, the greatest area requiring consideration is the glass and enamel or lacquer. The cleaning problems are usually different for each of the above because of the difference in their chemical nature. Usually however, the cleaning problem, as it relates to finish, resolves itself into making a determination of the proper cleaning agent to clean the vehicle sheathing, making certain that this same material properly cleans the glass.

If vehicles are equipped with large areas plated with chromium, and if it is desired

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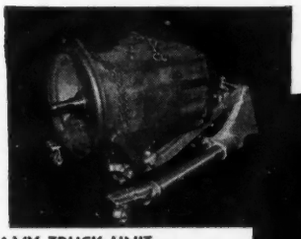

HEAVY TRUCK UNIT—
AEROL capacity 1500 lbs. Handles heavy units as easily as lighter units.

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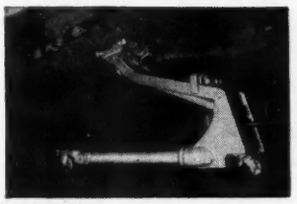

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Remove gas tanks without draining tank.

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WHEELS—
Raise frame of car to remove wheels when fender skirt is in the way.

Do more jobs—do them quicker—with an AEROL LIFT. The AEROL LIFT is built for easy, one-man operation. The AEROL LIFT raises the heaviest truck transmission to bench height (37″) and holds it in position. Can be used as a floor model or 2-post hoist model. Hydraulic jack removable for emergency use. The AEROL LIFT is the most versatile unit lift built—at a price you can afford.

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AUTOMATIC TRANSMISSIONS—
AEROL 2-post hoist model in position to remove automatic transmission.

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Please send me more information on the AEROL LIFT.
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Cleaning Report

Continued from Page 135

to maintain it in perfect condition, it must usually be accomplished by means of wiping the surfaces dry by hand with a chamois. A great many operators do not equip their vehicles with chromium-plated parts because of this factor.

Should a petroleum base solvent be used for exterior cleaning, liberal rinsing of tires with water at the end of the cleaning operation will prevent these solvents from affecting them.

Plastics are in only limited use on exterior of transit vehicles. However, since plastics are most impervious to the elements, their cleaning becomes simple as compared with other finishes.

Coated fabrics are used on the roofs of many older-type buses and trolley coaches and on the roofs of most streetcars. If the final coat of color applied to the fabric is the same material as the rest of the vehicle, then the same cleaning agent and cleaning method may be used here, as for the rest of the vehicle. Where some different finishing material is used on the rest of the vehicle, a complicated cleaning problem usually results and, consequently, plain water-cleaning of roofs under these circumstances is recommended.

There is, however, a special problem which exists with streetcar and trolley coach roofs. This has to do with the cleaning of the copper oxide stains which come from the trolley. Usually an acid type cleaner will remove this oxide. It is most important in this connection to understand that this is a separate problem and to treat it as such.

Cleaning Agents

IN GENERAL, the action of car washing materials is to reduce surface tension of water so as to allow it to separate the dirt particles from the surface. This is generally not sufficient to completely dislodge the dirt from the surface and mechanical agitation is generally necessary to accomplish this.

There are certain precautions which should be taken when considering cleaning agents and when observing their action.

Sudden influx of rinsing water into a suspension of dirt and cleaning solution agitated by brushing may, with some cleaners, cause a break-down of that suspension, resulting in a re-deposition of minute quantities of dirt.

Many cleaners cut road scum but still re-deposit small quantities of it as residual scum. Cleaners which act in this manner do not remove this residual scum after subsequent washing.

Occasionally, an excellent cleaner is condemned as a "streaker," when in reality, it is removing residual scum. Likewise, some cleaners are considered "exceedingly efficient" when in actuality, they are good paint removers.

Some cleaning agents are purported to be suitable for waxed surfaces. If they work satisfactorily on waxed surfaces without removing the wax, they will not remove scum or greasy finger-marks.

Characteristics

CLEANING solutions have certain characteristics which may be observed when considering cleaning agents. These characteristics, in general, are:

1. Soak into the dirt and soften it. 2. Disburse solid particles and emulsify petroleum particles. 3. Hold such suspensions through the rinse and fail to redeposit. 4. Not require warm water for proper action. 5. Not harm finish even if applied many times in succession at high concentration. 6. Not be injurious to clothing of personnel nor affect their skin.

Though it is entirely possible to clean vehicles without suds, most people look upon suds as an essential. It is possible to have too many suds in car washing because suds are air bubbles and air will not clean vehicles.

This does not mean, however, that suds are of absolutely no value. They do tend to hold solution on the surface of the vehicle for longer periods of time. This is most important in the automatic application of soap solutions because of the necessary time lag between application and removal. Also, in the automatic application of soap, less material will be consumed where relatively large volumes of suds are manufactured.

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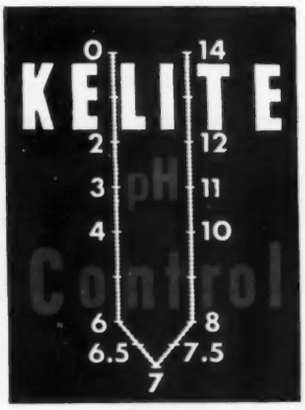

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SUPER CLEANERS!

Don't struggle with abrasives or harsh alkalies. Don't risk explosive solvents. Instead, put the power of *Kelite pH Control to work for you! Here are three examples of how KELITE cleans quicker, better:**

SOAK DIESELS CLEAN with KELITE FORMULA 504. This powerful decarbonizer removes carbon, grease and oil... works without heat or agitation to leave engines, jets and parts immaculate... has long life... rinses with water... safe on all metals.

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★ Scores of specialized KELITE materials and processes apply the chemical principle of *pH Control* to produce amazing cleaning power with complete simplicity. Phone your local Kelite Service Office or write to nearest address below for a "no cost — no obligation" demonstration today!

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Again in 1951,

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A majority* of the winners of the Bus Transportation awards used Packard cable.

* 16 out of 23

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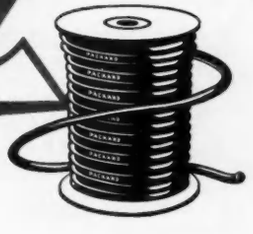

Packard Electric Division, General Motors Corporation
Warren, Ohio

FOREMOST BUILDER OF AUTOMOTIVE AND AVIATION WIRING

"This one clamp saves a dozen trips to the stockroom"

"Aero-Seal"
WORM DRIVE
HOSE CLAMPS
with Stainless Steel bands.

No need for a trip to the stockroom for a clamp to tighten a leaky hose. Overhaul after overhaul, season after season, the mechanic simply replaces the worn hose and re-uses the same Aero-Seal Hose Clamp.

WON'T CRIMP—CAN'T LEAK

Worm drive applies even pressure all round the hose. Smooth saddle prevents cutting. No crimping—Aero-Seal can be replaced in any position. Three threads of worm always engage deep into slots of stainless steel band . . . hold hose tight over a million miles of roads!

REPLACE ANYWHERE—ANY TIME

A man can install an Aero-Seal any place he can reach with thumb and finger. Integral construction—no parts to lose. Self-feeding when worm engages band. Screw-driver slot or thumb grip screw styles. Tighten with a twist of the wrist.

Fit most transportation industry needs. Write for FREE SAMPLE today.

BREEZE CORPORATIONS, INC.
41 South Sixth St., Newark, N. J.

Cleaning Report

Continued from Page 136

Classifications

THERE are several classifications of cleaning agents sold for cleaning vehicles. It is most important to understand that every product is a compromise between efficiency and safety.

The general classifications of materials are:

1. Soaps; 2. Synthetic detergents; 3. Inorganic alkaline salts; 4. Solvents; 5. Acid cleaners.

The most desirable soaps for vehicle cleaning are the soft soaps of fatty acids because they are most soluble and rinse quicker than hard soaps. Soaps may be considered fairly satisfactory in their use, but it must be recognized that the toughest enamel can be streaked and dulled by hydrolized soap solutions and that pure soaps, in which no additives have been dissolved, will leave an insoluble scum even after heavy rinsing.

Synthetic detergents, by themselves, are less efficient cleaners than soaps but become more efficient when fortified with alkalies, soaps, or both. All pure synthetic detergents penetrate deeply and quickly into the surface of new synthetic enamels. And it must be remembered that, when they are used by themselves, that they are safe inversely proportional to their concentration.

Inorganic alkaline salts make no suds and are impractical when used alone. They aid appreciably when used with soaps or synthetic detergents.

Solvent cleaners are two-step cleaners. First, the oil in the filth is dissolved, then the entire mixture of dirt and solvent is emulsified by the rinse water. The main drawbacks to the use of regular solvent type cleaners are:

1. They have a tendency to stain light colors. 2. They have an objectionable creosote-like odor. 3. They usually cost more than other cleaners.

An advantage of this type cleaner is that it alone offers the elimination of surface agitation.

Acid type cleaners are generally not as effective as other types but are required for the removal of unsaponifiable and non-emulsifiable types of dirt, such as fine metallic dust.

This description of cleaning agent types appears, perhaps, to have only disadvantages to offer; and it is important to understand that none of the cleaning agent types are without their disadvantages. However, they also possess certain advantages which can be determined only by actual tests under conditions in which they are expected to perform. In fact, commercial cleaning compounds may be composed of all the cleaning agent types described to the point where they cannot be readily identified. From a practical standpoint, commercial cleaning compounds must be considered primarily on their ability to perform.

(TURN TO PAGE 140, PLEASE)

Budd Wheel Distributors
provide the same service described in this advertisement

'48 | '49

AKRON—Motor Rim Manufacturers Co.
ALBANY—Wheels, Incorporated
ALBUQUERQUE—Wheels & Brakes, Inc.
ATLANTA—Harris Automotive Service, Inc.
BALTIMORE—R. W. Norris & Sons, Inc.
BIRMINGHAM—Wheel, Rim & Parts Co.
BOSTON—New England Wheel & Rim Co.
BUFFALO—Frey, the Wheelman, Inc.
CHARLOTTE—Carolina Rim & Wheel Co.
CHICAGO—Stone Wheel, Inc.
CINCINNATI—Rim & Wheel Service, Inc.
CLEVELAND—Motor Rim Manufacturers Co.
COLUMBUS—Hayes Wheel & Spring Service
DALLAS—Southwest Wheel, Inc.
DAVENPORT—Stone Wheel, Inc.
DAYTON—Rim & Wheel Service, Inc.
DENVER—Quinn & McGill Motor Supply Co.
DES MOINES—Des Moines Wheel & Rim Co.
DETROIT—H. & H. Wheel Service, Inc.
EVANSVILLE—Auto Wheel & Rim Service Co., Inc.
FARGO—Wheel Service Company
FORT WAYNE—Wheel & Rim Sales Co.
GRAND RAPIDS—Rim & Wheel Service Co.
HARRISBURG—Standard Rim & Wheel Co.
HARTFORD—Connecticut Wheel & Rim Co.
HOUSTON—Southwest Wheel & Equipment
INDIANAPOLIS—Indiana Wheel & Rim Co.
JACKSONVILLE—Southeast Wheel & Rim Co.
KANSAS CITY—Borbein, Young & Co.
KNOXVILLE—Harris Automotive Service, Inc.
LOS ANGELES—Wheel Industries, Inc.
LOUISVILLE—Auto Wheel & Rim Service
MEMPHIS—Beller Wheel, Brake & Supply Co.
MILWAUKEE—Stone Manufacturing Co.
MOLINE—Mutual Wheel Co.
NASHVILLE—Beller Wheel, Brake & Supply Co.
NEWARK—Automotive Safety Inc.
NEW HAVEN—Connecticut Wheel & Rim Co.
NEW ORLEANS—Southern Wheel & Rim Co.
NEW YORK—Wheels, Incorporated
OKLAHOMA CITY—Southwest Wheel, Inc.
OMAHA—Morgan Wheel & Equipment Co., Inc.
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PHILADELPHIA—Thomas Wheel & Rim Company
PITTSBURGH—Wheel & Rim Sales Co.
PORTLAND—Six Robblees', Inc.
PROVIDENCE—New England Wheel & Rim Company
RALEIGH—Carolina Rim & Wheel Co.
RICHMOND—Dixie Wheel Co., Inc.
ROCHESTER—Frey, the Wheelman, Inc.
SALT LAKE CITY—Henderson Rim & Wheel Service
SAN ANTONIO—Southwest Wheel & Equipment
SAN FRANCISCO—Wheel Industries, Inc.
SEATTLE—Six Robblees', Inc.
SOUTH BEND—Wire & Disc Wheel Sales & Service
SPOKANE—Bearing & Rim Supply Co.
SPRINGFIELD, ILL.—Illinois Wheel & Brake Co.
SPRINGFIELD, MO.—Borbein, Young & Co.
ST. LOUIS—Borbein, Young & Co.
ST. PAUL—Wheel Service Co.
SYRACUSE—Colbourn Wheel & Rim Service, Inc.
TACOMA—Six Robblees', Inc.
TOLEDO—Wheel & Rim Sales Co.
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EXPORT
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CANADA
CALGARY—Fisk Tire Service Ltd.
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TORONTO—Wheel & Rim Co. of Canada, Ltd.
VANCOUVER—Wheels & Equipment, Ltd.
WINNIPEG—Ft. Garry Tire Service Ltd.

'50 '51

WHO'LL THEY BE IN '52?

For four years now, we've been telling you about the experiences of many truck operators who changed over to Budd wide base wheels with a taper under both bead seats. Probably you'll remember many of the 1951 stories briefly noted below. Perhaps you'll want to call your Budd wheel distributor, listed at the left, for advice on some wheel or tire problem you're facing.

JAN. We told you how the Utah Oil Refining Company found their tire cost dropped to 1 mill—1/10 of a cent a mile—since they switched to Budd wheels with wide base rims.

FEB. We reported that Duluth Superior Transit solved the problem of rim flange breakage and bead failure with a switch from 5.00S and 5.50S rims to Budd 6.00 and 6.50 wheels with wide base, tapered bead seat rims.

MAR. You remember how Montour Transportation Company, petroleum haulers, increased their tire mileage 75% with wide base Budd wheels.

APR. In a message from the Dickinson County Road Commission, Iron Mountain, Michigan, you read how they increased tire life 75% as a result of a change-over of 19 heavy duty trucks to Budd wide base wheels.

MAY We hope you were amused by the picture of the Army's new "Eager Beaver" cruising along a lake bottom with, "naturally," Budd advanced wheels.

JUNE A letter from the Alton Box Board Company stated that for two years in a row they had won the Shop Excellence Award, private carrier class, from the American Trucking Association. They further stated their policy of specifying Budd wide base disc wheels.

JULY Remember the weird looking "Sugar Cane Train?" Well, U. S. Sugar found that a change-over to Budd disc wheels on both the cane carts and the tractors cut operating costs 25% and maintenance costs 50%.

AUG. Hadacol had a headache! Seems they were suffering from a constant breakdown of wheels. But not since they switched to Budd wide base disc wheels.

SEPT. "Without the savings brought about by Budd wheels we couldn't continue to operate." That's the statement of Roland Heldt, of Heldt Brothers, in Alice, Texas.

OCT. Good old No. 8! Since 1948 this truck of the Washington Asphalt Company has been rolling on the same rubber for better than 60 thousand miles. The cost to date has been $1.19 a thousand miles, including the cost of the wheels, as compared with $4.55 a thousand before the change-over.

NOV. 100 gallons more payload per trip! That's what Lang Transportation Company reports. According to those figures the cost of their new advanced Budd disc wheels will be paid back in 12 months!

DEC. Time now, to wish you a Merry Christmas. And a Happy and, of course, *prosperous* New Year!

GENUINE Budd COLD TAPERED DISC WHEEL

Available in both standard and lightweight construction.

Cleaning Report

Continued from Page 138

Evaluation

THE cleaner may be evaluated readily by two simple tests. (1) a test for their effect on the finish on which they will be used and, (2) their ability to clean the surface on which they are to be used when soiled under normal conditions.

To make the first test, well-aged panels, representing all the materials and colors on which the cleaner is to be used, may be submerged in a strong solution of the cleaner being tested for about 24 hours. Should a 24-hour emersion test indicate that the cleaner is safe, then tests for its actual cleaning ability may be performed. This should consist of cleaning a sufficient number of buses in the presence of a trained observer to determine actual results.

Exterior Cleaning Procedure

EXTERIOR cleaning of vehicles fundamentally follows a four-step pattern, as follows:

1. Wetting down thoroughly; 2. Application of solution; 3. Agitation of solution on surface; 4. Thoroughly rinsing.

The above short list of steps would make the problem appear simple. Complexity occurs only in the method of applying these four steps. I, therefore, wish to discuss each quickly.

Steps 1 and 4, that is, the wet-down operation and the rinse-off operation may generally be considered, from a method standpoint at least, as being identical. This may be accomplished by the use of air-and-water guns, high pressure water nozzles, spray tunnels and fountain brushes.

Application

SOLUTION may be applied by the use of air-and-water-guns, spray tunnels, fountain brushes and plain long-handled brushes and buckets. The agitation of solutions may be accomplished by means of fountain brushes, hand brushes, sponges or mitts, and long-handled brushes or rotary brushes.

Spray tunnels consist of a frame equipped with nozzles and a three-way valve. Using plain water, the vehicle is driven through forward. The valve is turned to spray solution and the vehicle is backed through. Solution on the surface is then agitated and with the spray valve turned to plain water, the vehicle is driven through forward.

This tunnel consists of one-pipe frame and a set of nozzles. A better form has two independent pipe frames, each equipped with nozzles. Not only does this eliminate time lag and solution waste, it also offers the possibility of eliminating the backing operation by proper spacing of pipe frames.

A recent development of this is to mount a double pipe frame with independent nozzles on wheels in channels along each side of the wash lane floor.

Fountain brushes offer probably the simplest and fastest form of washing, since it is continuous through the first four steps, in that the change from water solution and back again may be accomplished with a three-way valve.

Long-handled brushes and a pail form the simplest and most popular method of applying the cleaning solution. In this case, the use of high quality brushes is an economy because of their longer life.

Air-and-water-guns are available from several manufacturers and offer certain economy in water, where that is a factor.

Catwalks or galleries, from which men can reach with brushes on all parts of the roof are worth serious consideration. In this connection, it has been found that the use of the conventional type cotton-rope floors mops suspended in the wash-rack area above the vehicles, in such a way that they rub across the wetted-down roof of the vehicle, is doing quite a satisfactory job in automatically and economically keeping vehicle roofs clean.

The use of hot water in vehicle washing is entirely unnecessary. It is pointed out that difference in temperature between the washing water and painted panels results in excessive expansion. For this same reason, vehicles should not be washed when the temperature is below freezing.

(TURN TO PAGE 142, PLEASE)

Season's Greetings
BURD AUTOMOTIVE PRODUCTS
BURD AUTOMOTIVE PRODUCTS
...AND MORE POWER TO YOU IN '52!
We hope 1951 has been as good to you as it has to us. For we are ending the year with every department of our business at a new high level in sales. So to our friends in the commercial car field—a grateful acknowledgement of your past patronage, and a sincere pledge of continued quality in Burd Automotive Products to merit your business in the future. May Your Christmas be Merry— your New Year Most Happy and Prosperous!
BURD PISTON RING COMPANY • ROCKFORD, ILLINOIS
DIVISION OF
THE GABRIEL COMPANY
BURD AUTOMOTIVE PRODUCTS
PISTON RINGS
VALVE PACKING
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RE-GLAZING TOOL
HOT WATER CAR HEATERS

HOT SPRAY or COLD... LACQUER or SYNTHETIC...

ADVANTAGES POSSIBLE WITH HOT SPRAY

CUTS COSTS—less solvents used—less solvents wasted.

SAVES TIME—50% fewer coats needed.

GIVES MORE UNIFORM RESULTS—reduces variations in results caused by climatic conditions.

PROVIDES IMPROVED FINISH—gives smoother flow . . . tougher film . . . more natural gloss . . . . greater depth of color.

REDUCES COMMON PROBLEMS—lessens possibilities of blushing, orange peel or overspray . . . reduces amount of dirt in final finish.

Get this book

This book summarizes the advantages of, and latest developments in hot spray methods, materials and equipment. It includes suggestions on temperatures, pressures, reductions and application techniques, based on laboratory findings and shop experience. Write for copy, without obligation.

You can be sure... either way... if the materials are OK

What are the right materials . . . how should they be used . . . for best results with hot spray application?

You will find the right answers, for hot spray finishing as well as cold, with either lacquer or enamel, in Sherwin-Williams OK Automotive Finishes. Sherwin-Williams Opex Lacquers and Kem Transport Enamels enable any shop to obtain the fullest benefits offered by modern methods of hot spray application.

For up-to-the-minute technical information on hot spray finishing and the advantages it offers in automotive refinishing work, write today for a free copy of the new Sherwin-Williams booklet, "A Technical Report on Hot Spray Application". If you would be interested in attending a clinic or participating in an actual demonstration of hot spray application, consult your nearest automotive jobber handling Sherwin-Williams OK Automotive Finishes or write us, and every effort will be made to arrange one in your locality. Call, write or phone—today! The Sherwin-Williams Co., Automotive Sales Division, 1218 Midland Bldg., Cleveland 1, Ohio. (Export Sales Division, Newark 1, N. J.)

SHERWIN-WILLIAMS

AUTOMOTIVE FINISHES

Cleaning Report

Continued from Page 140

Interior Cleaning

MAKING a determination as to the frequency of interior sweeping and dusting becomes most simple, provided one is willing to accept convention, for practically all operators sweep and dust each night.

The scope of such cleaning is almost self-evident and includes sweeping the floor, dusting the seats, sills, operator's dash, and architectural ledges. This automatically discloses to cleaning personnel any "art work" which must be removed.

Some types of vehicles have characteristics of interior design which require special attention. An example of this would be a window pocket or a closed-in seat base where trash tends to accumulate. Some types of ventilation make necessary frequent dusting of areas not normally dusted daily.

The sweeping operation and dusting operation are frequently separated to allow the dust stirred up by the broom to settle before dusting.

The dust-absorbing qualities of dust rags may be increased appreciably by placing them in a closed container to which has been added a small amount of a vaporizing oil, such as beeswax oil. The oil need not come in actual contact with the rags.

Special dirt receivers which fit into a stepwell may be of help in disposing of sweepings where sufficient space is left between vehicles to permit their being moved from vehicle to vehicle.

Vacuum cleaners of the portable type have not proved to have sufficient merit to overcome the disadvantage of having to move the unit, together with wire and hoses, from vehicle to vehicle. At least one company is currently experimenting with a large central vacuum generator with numerous outlets throughout the garage.

It is my belief that, by far, the vast bulk of operators utilize the standard corn broom or standard push broom together with dust rags as their usual tools.

All methods mentioned have the disadvantage of having to sweep and dust around a forest of stanchions, seat pedestals and other protrusions. Also, relatively large quantities of time are consumed when this job is properly performed.

In this connection, I have recently seen a sweeping and dusting device which, in my opinion, should revolutionize this job. It will sweep and dust a bus in no more than 25 per cent of the time required for the conventional way and, at the same time, do by far a much more superior job. Because of the fact that the device is still in the development stage and because it may be some time before it will be ready for marketing, I am unable to tell you more about it. I simply say, keep your eyes open for this device which, if you can use it, can't help but save you money.

Frequency Up to Management

THE frequency with which the interiors of transit vehicles should be cleaned and scrubbed must be determined in much the same manner as for exterior washing. Here again, management level policy must be established based upon standard of appearance desired, the quality of the cleaning desired, the expense warranted, the weight given to the public relation factor, and labor costs.

Since experience has shown that complaints from the riding public are overwhelming with regard to interior cleaning rather than exterior cleaning, it appears that the standard of cleanliness on the inside must be more carefully selected and more rigidly adhered to than on the outside.

The selection of an interior cleaner is of equal or greater importance than that of an outside cleaner, as the cost of completely refinishing interior surfaces usually is greater than that of refinishing the exterior. The same remarks made concerning careful selection of exterior cleaning agents will, likewise, hold true for the selection of an interior cleaner.

The ease of cleaning interior painted surfaces is influenced to a considerable extent by the gloss of the finish. Although

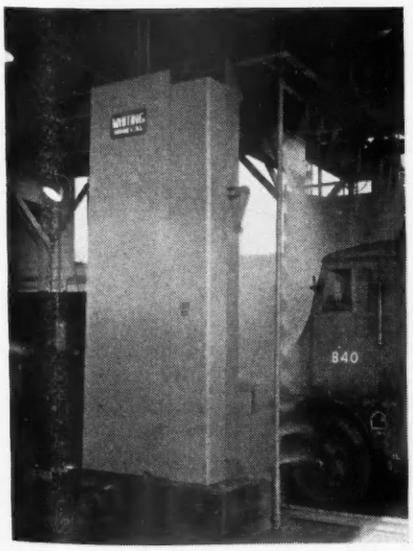
(TURN TO PAGE 146, PLEASE)

Ready for Full Dress Inspection!

Photos courtesy Consolidated Freightways, Inc.

REQUIRES LITTLE SPACE

Engineered to your needs



Maintaining a good public appearance does not mean that you have to retain the old-fashioned, intermittent hand washing method that is so costly.

The Whiting Washer, with a brush arrangement that exactly meets your needs, is a new approach to efficient maintenance. It puts the "Spit and Polish" method where it belongs—in antiquity. Send the coupon for more information on this time and moneysaving equipment.

WHITING*

*Reg. U. S. Pat. Off.

WASHERS
FOR BUSES & TRUCKS

Send the Coupon for Complete Details

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Please send information on Whiting Washer.

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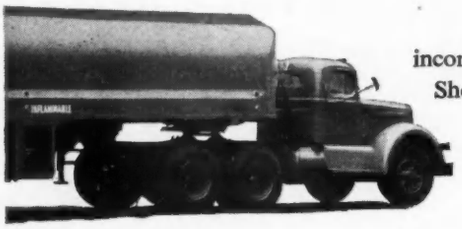
HENDRICKSON TANDEM

Follow the Leader!



Many White Truck users are specifying Hendrickson Trailing Axle Units, incorporating the Hendrickson Tandem. Shown here is a White Model WC-28. *The Trailing Axle Unit added only 1950 pounds to the base chassis weight.*

HENDRICKSON TANDEM

For complete details, write for Trailing Axle Bulletin.

HENDRICKSON MOTOR TRUCK COMPANY

8001 West 47th Street • Lyons (Chicago Suburb) Illinois

Cleaning Report

Continued from Page 142

a flat or eggshell finish is desirable from an appearance point of view, in some instances, invariably they require more cleaning labor and often present less attractive appearance after cleaning. Even a gloss finish, if badly dulled by an unsuitable cleaning material, eventually will present the same problem.

Since prolonged contact of dirt on painted surfaces makes removal more difficult, cognizance must be given to striking a balance between necessity for cleaning and ease of cleaning; particularly on vehicles which do not accumulate mileage rapidly, and which are scrubbed on a mileage basis.

Development of techniques, and close supervision over them, play a major role in determining cleaning time and cleaning efficiency. The cleaning material manufacturer's recommendation usually will serve as a good starting point from which modifications can be made.

In this connection, Capital Transit Co. has in operation a "Mobile Cleaning Team," on a test basis. This team is composed of several cleaners, a paint touch-up man, and a full-time supervisor. The team has been equipped with a bus in which has been placed steel lockers, cloth containers, a paint locker, etc. With this, it is completely self-contained and can move from garage to garage as required.

(For complete details, see Page 60.—The Editors.)

END

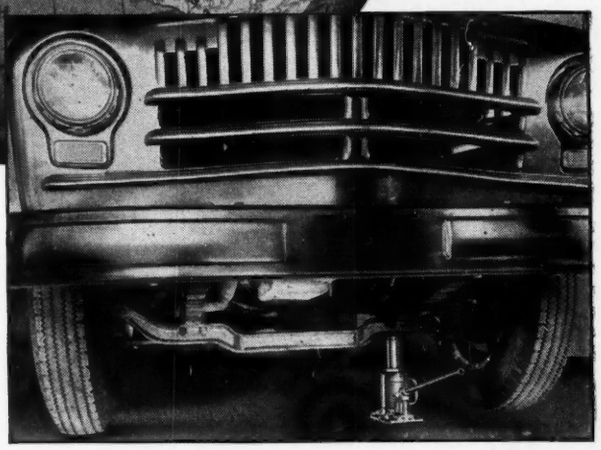
Please Resume Reading Page 60

High-Tower Truck

The Lackawanna Railroad has this high-tower truck in its bridge and building department. It is a two-ton Chevrolet stake body truck fitted with a hydraulic hoist platform which can be raised to 30 ft. The hydraulic pressure comes from an engine take-off operated by the fan belt, which eliminates any electrical drain. Its lowered height from the ground is less than 10 ft.

HEIN-WERNER HYDRAULIC JACKS

born in Waukesha...raised all over the world!



MODEL E12 9-A
12 TON

From Waukesha to Weehawken, Wenatchee or wherever you name—Hein-Werner Hydraulic Jacks safely raise loads when tires need to be changed.

Every Hein-Werner Hydraulic Jack is factory tested at 1½ times rated capacity. Sturdy, dependable, safe. Jack can't lower accidentally as handle must be removed from pump to open release valve.

Made in models of 1½, 3, 5, 8, 12, 20, 30, 50 and 100-tons capacity . . . Complete line also includes Bumper-Lift Jacks for passenger cars, Swift-Lift and Service Jacks for shop use, and Hein-Werner "Push and Pull" Hydraulic Jacks for body, fender and frame repair work.

Hein-Werner HYDRAULIC JACKS

Ask your jobber or write us for details

HEIN-WERNER CORPORATION • WAUKESHA, WISCONSIN

MAINTENANCE REPORT

HOW MUCH
SPRING TENSION IS LOST
When You Grind Valves & Seats?

"EXPERT MAINTENANCE MEN KNOW" . . . says "Pete" Peterson, "that on one engine you lose up to 25% valve spring tension (valve in closed position) when the pressed-in valve seat is lowered as little as 32 thousandths. Loss of spring tension causes broken or burned valves because valve flutters and bounces on a hard, distorted and cocked pressed-in valve seat.

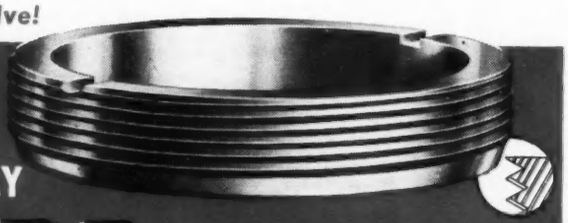
DO YOU KNOW . . . ? That when using *pressed-in seats* (pre-cut 45°) you can't get the correct valve seat height because:

1. The pre-finished valve seat insert drops below block surface when pressed into a deepened counterbore. You necessarily deepen the counterbore when you clean and true it up.
2. *Pressing in* an insert distorts the valve seat which then requires considerable grinding to get it back to round. With excessive grinding you again lower the seat.

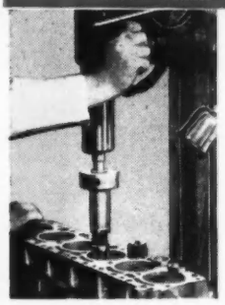
Both "truing up" processes set the valve seat lower in the block than called for in original factory specifications . . . the result, decreased spring tension and ultimate valve breakage and burning.

Stays Round—Cools Valve!

Made of tough chrome-nickel-iron, individually cast under pressure. Unlike pressed-in seats, P-B Screw-In Valve Seats retain their original dimensions, won't buckle and come loose, can't tilt and cause hot spots and valve burning, and allow for perfect seating of valve on every stroke.



ONLY THE P-B SCREW-IN VALVE SEAT
WITH EXPANSION CLEARANCE



P-B drill press unit for **production** installation. Also available HEAVY DUTY PORTABLE unit for jobs in or out of chassis—up to Diesel locomotives.

Special 8 and 12 fluted CUTTER and TAP makes only precision counterbore in replacement field and machines in expansion clearance **between threads.**

LET'S YOU HOLD
FACTORY TOLERANCES
ON VALVE SEAT REPLACEMENTS!

1. With P-B seats you can get exactly the right valve seat height even though you deepen the counterbore. P-B seats have an extra 1/16" of material which is easily machined off flush with block. And since the P-B seat is *not* pre-cut, you can grind to factory accuracy.
2. Because you *screw-in* the P-B insert there is absolutely *no* distortion . . . the seat remains perfectly round.

P-B's exclusive features let you hold factory specifications . . . maintain proper spring tension . . . double your valve mileage.

AMAZING PERFORMANCE

- **SAVES COSTLY BREAKDOWNS**—Eliminates 75% of valve burning, sticking and breakage. The *predetermined* expansion clearance machined in between the threads of the P-B seat also eliminates 75% of valve port cracks due to radial pressure of expanding pressed-in seats. P-B *stress-relieves* this area.
- **REPLACEMENT OF SEATS MANY TIMES**—WITHOUT OVERSIZE—You can replace P-B seats without damaging the threads in counterbore or going to an oversize.
- **EASY TO REGRIND**—After long service just a light touch with the grinding stone cleans it up because it is not out of round.

CONTACT YOUR MASTER SHOP TODAY!

P-B Master Shops are now located in every major city in the U. S., ready to help you solve your toughest valve maintenance problems. Or write for further information:

Leader for 20 years in head and block valve port welding procedures.

SCREW-IN SEAT WITH EXPANSION CLEARANCE

PETERSON WELDING LABS., INC.
Dept. C-12 1423 Virginia Kansas City, Mo.

PETERSON-BURSTON copyrighted in the U.S. and Canada by the Burston Valve Seat Corp., Toronto, Canada.

ATA Convention

Continued from Page 66

mittee to participate fully in the projected Interstate Commerce Commission investigation of transportation of explosives by motor vehicles. Private carriers are of the opinion that the proposed ICC investigation may have a profound effect not only upon the transportation of explosives by private carriers, but also in setting precedents for transportation of other commodities.

Common Carriers

THE report of the Equipment Design and Specification Committee of the Common Carrier Conference was given by J. L. S. Snead, Jr., chairman.

Mr. Snead reported on a committee meeting held in Chicago, Oct. 18, with representatives of major heavy truck manufacturers, the Tire & Rim Association and a representative of TTMA. At this meeting it was agreed that the requirements of the operators would be channeled to the equipment manufacturers through their associations. It was further stated that the committee is now collecting information by means of a questionnaire sent to all regular common carriers.

Problems the committee plans to work on were summarized as follows:

(a) The obtaining of maximum cubic capacity or loading space in trailer bodies.

(b) Reduction in fifth wheel height variation.

(c) Reduction in the variation in distance between front of bumper and back of cab.

(d) Reduction in the variation of number of cubic feet in trailers of the same length.

The report also stated: "The manufacturers have agreed in principle to long-range cooperative engineering work designed to eliminate non-essential differences between component parts of intercity combinations. In this field, they are exploring the possibility of further standardization in brake drums, brake lining, ignition coil mounting brackets, and axle shafts."

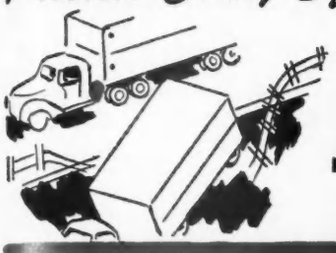
The committee expressed the need for a joint engineering approach to tractor-trailer design, as combinations should be considered as a whole. The manufacturers have agreed in principle to work together to this end. Their work in this field will be considerably more effective when the common carriers are able to resolve their own differences of opinion in such matters as wheel-base, and location of fifth wheel and king pin, so that a greater measure of standardization will become practical.

The committee recommended that the truck-trailer manufacturers seek a practical solution to the problem of better lighting for the night loading of trailers. This the manufacturers have agreed to do. They also requested that the manufacturers study

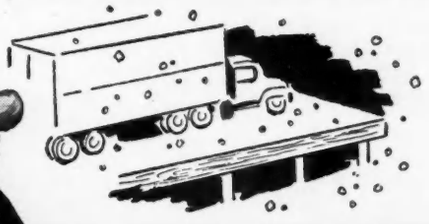
(TURN TO PAGE 150, PLEASE)

These 4 and more!

Protects Costly Equipment

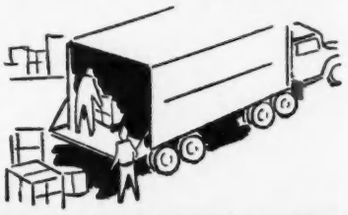


Helps Maintain Schedules



Protects Drivers

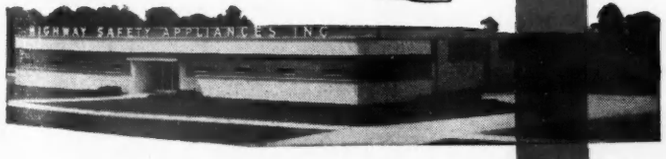
Protects Pay-loads



Member of NATIONAL SAFETY COUNCIL

PROPER GRIT IS IMPORTANT!

For best results under all conditions, use either ELSTON SAFETY GRIT or a comparable grit that is non-freezing, free-flowing. ELSTON SAFETY GRIT is sold in 50 lb. moisture-proof bags.



Every Truck Needs...

HIGHWAY SAFETY

ELSTON ELECTRIC

SANDERS

Truck-drivers from coast-to-coast need and deserve the *extra* safety that Elston SANDERS provide. Dash-mounted electric control switch is always ready. Just press . . . and presto . . . an ample supply of SAFETY GRIT produces instant traction beneath the wheel. Reduce tie-ups and accidents, step up profit-making road time. Install HIGHWAY SAFETY ELSTON SANDERS on your trucks today. Truly a profitable investment for every truck owner.

Write, wire or phone for complete literature and installation information.

HIGHWAY SAFETY APPLIANCES, INCORPORATED

1381 Marshall Avenue • St. Paul 4, Minnesota

ATA Convention

Continued from Page 148

the problem involved in balancing tire, wheel, hub and drum assemblies, and in controlling out-of-round, and run-out in them.

The committee drew to the attention of the manufacturers the desirability of so designing equipment for use in bridge formula states as to provide over-all combination wheelbases less than 54 in. shorter than over-all combination length in order to permit maximum gross weight within the particular over-all length limitation.

Speakers of the Week

AMONG the principal speakers at the meeting was Dechard A. Hulcy, president of the Chamber of Commerce, U.S.A., who contrasted the progress made under a free economy with the lack of improvement which is the inevitable result of living under a planned economy. In stating the case for American business, he said we live better today than 40 years ago, not because of our great expanded government but in spite of it!

Recognizing the shortcomings of private enterprise, he urged businessmen to strive to improve our system as we strive to defend it against socialistic encroachments.

Secretary of Navy Dan A. Kimball told of the role of trucks in the defense effort and also of the development of highway transportation in Europe since the war. In Germany, for example, size and weight regulation is a 72-ft overall length limit, not more than two trailers in a combination and a general provision against overloading the tires with which the vehicle is equipped.

Assistant Postmaster General John M. Redding told the Common Carrier Conference members what they could do to secure mail-by-truck contracts and promised that the only limit on the extent of the switch from rails to roads would be the ability of the trucks to give better service at comparable or lower cost.

A. K. Davis, a banker from Winston-Salem, N. C., gave the Common Carriers sound advice as to information they should furnish to get acceptable bank financing on new equipment or terminals. He stressed the need for more adequate capitalization or, in other words, for the operators to have more of their own money invested in their business.

James K. Knudson, Defense Transport Administrator, spoke again this year on the subject "Truck Transportation in the Defense Period." He pledged the support of his agency in endeavoring to see that highway transportation continues to receive the vehicles, parts and operating supplies needed to serve during the defense emergency.

Speaking for the Portland Cement Association, G. Donald Kennedy gave his reasons why he advocates Portland Cement Concrete for the highways to be built in carrying out the "PAR" campaign. Last year, the asphalt interest presented their reasons for recommending their material.

Kennedy pointed out that while the Maryland Road Test brought about structural failures in the concrete road, these were the result of lack of adequate preparation of the sub-base. He said: "Not a single crack developed in any of the twenty-eight 40-ft concrete slabs built on the non-pumping granular sub-base." Scaling, caused by the use of salt to melt snow and ice, has been eliminated through the use of air-entrained Portland cement. He also said "pumping" is completely stopped by the use of about 4 to 6 in. of granular sub-base.

Mr. Kennedy commented on the use of cement concrete in the Pennsylvania Turnpike both in the original construction and the new extensions, and the use of asphaltic concrete on the New Jersey Turnpike. Although the New Jersey Turnpike will have 36½ in. of granular sub-base and paving surface, he said a cement concrete road of 10 in. of concrete on 6 in. of granular sub-base would have provided the same 36,000 lb axle load capacity.

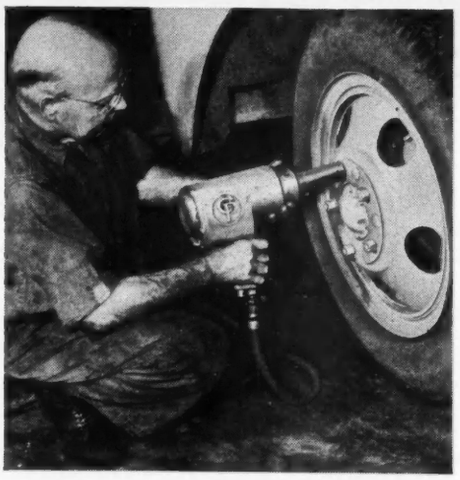
Driving Awards

UNITED STATES Championship crowns in the 11th National Truck Roadeo held in the International Amphitheatre went to the following:

First place winners in each of the four classes run Thursday night were: John

(TURN TO PAGE 152, PLEASE)

"Never a loose lug bolt"



Maintenance Superintendent B. F. Lane, of Altstadt & Langlas Baking Company, Waterloo, Iowa, states:—"We have never had a loose lug bolt, on any of our sixty-one trucks, since a CP-770 AIR IMPACT WRENCH has been used in periodic maintenance. Four wheels are removed or remounted in the time formerly required for one wheel with a hand wrench."

Among the other maintenance operations speeded up with the CP-770 Air Impact Wrench are scheduled checking of spring U-bolts and the removal of drive line flange nuts.

CP Air Impact Wrenches—the only complete line with detachable angle heads—are made in ½", ⅝" and 1" bolt sizes. A 1¼" bolt size wrench is available in straight or angle head models.

Write for full information

CHICAGO PNEUMATIC TOOL COMPANY
General Offices: 8 East 44th Street, New York 17, N. Y.

AUTOMOTIVE SERVICE EQUIPMENT • FENDER IRONS • ELECTRIC TOOLS
AIR IMPACT WRENCHES • AIR COMPRESSORS • PNEU-DRAULIC PUMPS

Maintenance Costs Cut...
because Engines Run Cleaner on
CITIES SERVICE C-800 OIL

"GRATIFYING CLEAN CONDITIONS" replaced the usual "evils" of stop-and-go engine operation, writes still another major fleet owner who switched to Cities Service C-800 oils. "In addition, the cylinder and shaft diameters have shown a minimum of wear."

This operator tested—checked—compared—for two years before he wrote his praise. It's added evidence that these oils can give you more work OUT of your trucks and less work ON them. With these Heavy Duty Cities Service C-800 oils... plus our technical help on your special problems... you can switch to lower costs. Write for full details to CITIES SERVICE OIL COMPANY, Room 267, Sixty Wall Tower, New York City 5. Or call the Cities Service office nearest you.

CITIES SERVICE

ATA Convention

Continued from page 148

H. Castner, 37, Portland, Ore., truck and full trailer; James E. Tucker, 34, Charlotte, N. C., straight truck; Albert D. Pomahatch, 39, St. Paul, Minn., tractor and single-axle trailer; and Alex Adamski, 37, Chicago, tractor and tandem-axle trailer. A field of 103 state champions competed in the roadeo.

Permanent possession of the Trailmobile Trophy, which is awarded annually by ATA for safety and service on the highways, was won by Pacific Intermountain Express, Inc., of Oakland, Calif. By winning the Trailmobile Trophy three times in succession, PIE became its permanent owner, according to G. D. Sontheimer, ATA director of safety.

The Trailmobile Trophy is awarded for (1) preparation for safety on the highways; (2) preparation for service on the highways; and (3) service rendered to highway travelers. Presentation of the Trailmobile Trophy to C. E. Johnson, vice-president and general manager of Pacific Intermountain Express, Inc., was made by Walter Mullady.

Guern Royster, Oakland, Calif., won the Morgan trophy as best all-around truck driver. He was presented with "Champion Sportsman of the Month" award from Champion Spark Plug Co., Toledo, Ohio, by George Owens at the International Amphitheatre. Royster has driven more than 500,000 miles in 14 years without an accident.

Shop Awards

MOTOR carriers and truck operators with outstanding maintenance shops and maintenance systems for the mechanical care of their trucks and trailers received Truck Shop Excellence Awards from Transport Topics. The winners were:

For-Hire Carrier Class with more than 700 vehicles: C. Eugene Johnson, vice-president, Pacific Intermountain Express Co., Oakland, Calif.

For-Hire Carrier Class with 250 to 700 vehicles: Ward L. Bennett, superintendent of automotive equipment, Baltimore Transfer Co., Baltimore, Md.

For-Hire Carrier Class with less than 250 vehicles: Leslie L. Madison, fleet superintendent, Meadows Transfer Co., Des Moines, Iowa.

Private Carrier Class with more than 700 vehicles: A. W. Bass, Jr., manager automotive section, domestic sales department, The Atlantic Refining Co., Philadelphia.

Private Carrier Class with 250 to 700 vehicles: James B. Carry, superintendent of transportation, Chestnut Farms-Chevy Chase Dairy Co., Washington, D. C.

Private Carrier Class with less than 250 vehicles: Walter Klausner, manager transportation department, Alton Box Board Co., Alton, Illinois.

New Officers

Walter F. Mullady, president of Decatur Cartage Co., Chicago, was elected president of American Trucking Associations, Inc. Walter F. Carey, of Commercial Carriers, Inc., Detroit, was elected first vice-president. Other officers include Fred B. Hufnagel, Jr., Sun Oil Co., Philadelphia, who was re-elected second vice-president; C. J. Williams, Hillside Transit Co., Milwaukee, Wis., third vice-president; John Ruan, Ruan Transport Corp., Des Moines, fourth vice-president.

George V. Eastes, Lee & Eastes, Seattle, Wash., was re-elected treasurer, and Chester G. Moore, chairman of the board of Central Motor Freight Association of Illinois, Chicago, was re-elected secretary. Leland James, Consolidated Freightways, Inc., Portland, Ore., who has served as president, was named chairman of the ATA board of directors.

Conference Officers

C. A. Pascarella, Francis H. Leggett & Co., New York, N. Y., was elected chairman of the Private Carriers Conference. Walter Klasner, Alton Box Board Co., Alton, Ill., was elected to the vice-chairmanship, and John A. Hassey, Cities Service Oil Co., Boston, Mass., was re-elected treasurer.

Re-elected as chairman and vice-chairman of the Contract Carriers Conference

(TURN TO PAGE 154, PLEASE)

ARE DRIVERS "RAILROADING" YOUR VEHICLES?

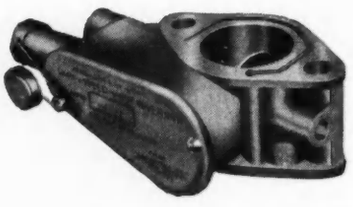
Handy Governors Will Stop It

Any driver is likely to be less than meticulous in his care of a vehicle he doesn't own. Many feel no compunction about "railroading" your vehicles. Drivers do most of their work away from supervision . . . abuses are hard to correct.

Handy Governor will stop "railroading" —stop practices which run up costs and wear out vehicles before their time.

The savings in tire, fuel, and lubricant costs, engine repairs, brake maintenance and general maintenance are spectacular. Reduced accident and insurance costs are equally important.

Let us show you some figures on savings — and tell you how little it costs to get them.



KING-SEELEY CORPORATION
ANN ARBOR, MICHIGAN
PLANTS AT
ANN ARBOR, SCIO,
YPSILANTI

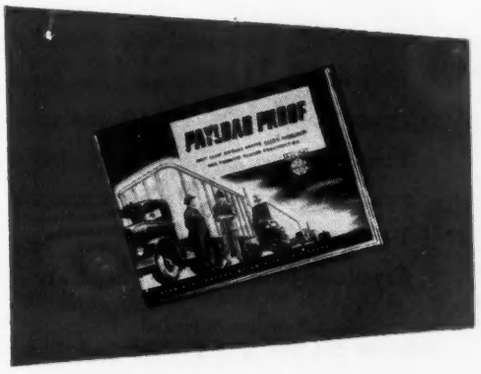
Rheingold reports:

Aluminum saves 2,700 lbs. per truck, cuts body maintenance cost over 60 per cent!

Leibmann Breweries, Inc., New York, find aluminum's weight-saving advantage is double-barreled. First, their 20-ft. aluminum truck body is 2,700 lbs. lighter than previously used wood-and-steel bodies. Second, the lighter weight and *improved distribution of weight* combine to permit use of shorter chassis which reduced turning radius by almost one-third . . . that means a lot in city delivery work!

In addition, aluminum bodies have cost far less for general maintenance. Specifically, only sixty to seventy dollars will prepare aluminum body trucks for the paint shop. Trucks with composite bodies require $300-$400 of work prior to painting.

Here again—*"extra* payload is the payoff" along with lower maintenance and other advantages. Here again—proof that fleets earn more, spend less when they operate Million-Milers of Alcoa Aluminum!



SEND FOR FREE COPY...

Even though supply of aluminum is limited by rearmament plans, this 36-page book, "PAYLOAD PROOF" will be valuable help in your long-range planning for more profitable equipment. *Write*—ALUMINUM COMPANY OF AMERICA, 1876M Gulf Bldg., Pittsburgh 19, Pennsylvania.

First in Aluminum

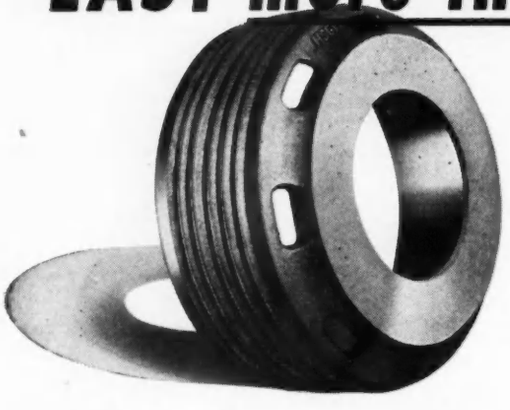
ALCOA

ALCOA

THE METAL THAT LASTS

GUN IRON* BRAKE DRUMS

LAST more than TWICE as long



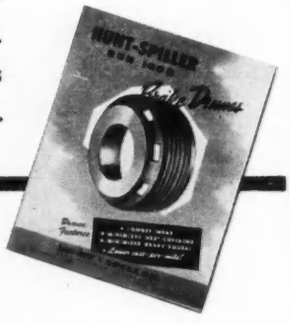
* *New high-carbon alloy of Gun Iron developed expressly to minimize heat-checking and squeal. Proved to give even longer life than previous Gun Iron Drums, the original cast brake drums.*

IN INDEPENDENT TEST!

Gulf Transport Reports:

"Results of tests using Hunt-Spiller Gun Iron Brake Drums have been very satisfactory and we are taking steps to standardize on them. The most we have been able to get from other rear drums was about 90,000 miles before turning. One set of Hunt-Spiller rear drums went 125,000 miles before turning, and after turning, have been operated 90,000 miles and is still going strong. A set of Hunt-Spiller front drums is still in service after 199,000 miles without turning. The value in savings in labor, replacement costs and road time lost to our fleet are obvious."

This is typical of the reports coming in from truck and bus fleets all over the country. In addition to increased wear life, heat checking and squeal are virtually eliminated in these great new H-S drums. And since Gun Iron has a very low coefficient of expansion, "fade" is reduced to a minimum. Why not get in on these proven savings yourself? Our representative will gladly give you all the facts. Built to original equipment specifications for most buses and trucks; fully guaranteed.



SEND FOR FREE BULLETIN

This bulletin gives the whole story on Gun Iron Brake Drums. It also contains actual proof of their economies on buses and trucks.

HUNT-SPILLER GUN IRON • HSGI • AIR FURNACE PROCESS

HUNT • SPILLER

MANUFACTURING CORPORATION

AUTOMOTIVE DIVISION

399 DORCHESTER AVENUE • SOUTH BOSTON 27, MASS.

ATA Convention

Continued from Page 152

were R. E. Dieckbrader of R. E. Dieckbrader, Inc., Cincinnati, Ohio, and C. J. Williams, Hillside Transit Co., Milwaukee, Wis., Ray Brown, Meadows Transfer Co., Des Moines, Iowa, was named secretary, and E. G. Rice, Complete Auto Transit, Detroit, was elected treasurer.

C. R. Patterson, Jr., was re-elected chairman of the Oil Field Haulers Conference. Other officers re-elected are: L. E. Whitlock, of the L. E. Whitlock Truck Service, Stafford, Kans., and Guy Nall, of the Guy Nall Truck Line, Seminole, Okla. Neil Darmstadter was appointed acting secretary.

The Irregular Route Common Carrier Conference elected as chairman R. Y. Sharpe, president, Pilot Freight Carriers, Inc., Winston-Salem, N. C. Other new Conference officers are Russell R. Goddard, vice-president, Plymouth Rock Transportation Corp., Cambridge, Mass., first vice-chairman; Eldon Miller, president, Eldon Miller, Inc., Iowa City, Iowa, second vice-chairman; J. C. Weaver, traffic manager, The Transport Corp., Richmond, Va., secretary, and Peter D. Serra, president, Rand Express Freight Lines, Inc., New York, treasurer.

The Regular Common Carrier Conference elected J. Robert Cooper of Red Star Transit Co., Detroit, Mich., as chairman. Earl F. Buckingham of Buckingham Transportation Co., Denver, Colo., was promoted from second vice-chairman to vice-chairman. Lee A. Hyde of Highway Express, Inc., Memphis, Tenn., was elected second vice-chairman. Sidney Allen of Central Truck Lines, Tampa, Fla., was re-elected treasurer.

Entertainment

THE first general luncheon was held Monday, with the International Harvester Co., as host. W. K. Perkins, manager of sales for the Motor Truck Division of the company, was chairman, and the Wayne King show was featured entertainment.

A reception at which the Firestone Tire & Rubber Co. was host concluded Monday's activities.

E. J. Thomas, president of the Goodyear Tire & Rubber Co., was principal speaker at the second general luncheon on Tuesday. Entertainment was provided by Paul Whiteman and his ABC orchestra.

The Truck Division of General Motors Corp. was host at the "GMC Evening" on Tuesday with dancing to the music of Tommy Dorsey providing the entertainment.

The White Motor Co. was host at a cocktail party on Friday.

Resolutions

AT the final business session the executive committee recognized the contributions made by such individuals as Henry E. English, Leland James, John V. Lawrence and Mayor Kennelly and staff for their

[TURN TO PAGE 157, PLEASE]

ATA Convention

Continued from Page 154

parts in the success of the overall program.

Action by the executive committee included a series of resolutions expressing:

1. Desire for an appropriation for the Bureau of Motor Carriers, Interstate Commerce Commission large enough to provide a staff which can accomplish the objectives of the National Transportation Policy.

2. Objection to the New York ton-mile tax law. They expressed complete sympathy with efforts to have the law repealed or declared unconstitutional.

3. Endorsement of the highway rehabilitation program declaring full cooperation with agencies and organizations backing it.

4. A decision to stay out of the leasing picture.

5. Acceptance of the PAR program in its entirety.

Action by the Executive Committee included instructions to a committee to prepare and submit for consideration on ATA policy on maximum vehicle size and weight limits: Appointment of a Special Committee on Reciprocity to work with the Motor Vehicle Administrators to effect equitable purchases of gasoline and vehicle tags by interstate carriers: Appointment of a committee to work with the Post Office Department to facilitate the handling of mail-by-truck: Instructions to the legal staff to intervene in all cases where ICC is contemplating additional restrictions or prohibitions on hauling explosives over the highway, and to investigate the recent trend toward legislation requiring mud-flaps—such as the Ohio, Pennsylvania and Oregon laws.

END

Please Resume Reading Page 71

Driver Honored

The first award made by the National Automobile Transporters Assn. was received at the Association's recent convention by driver Benjamin F. Hammel, (left) of the F. J. Boutell Drive-a-way Co., Inc., Flint, Mich. Richard E. Beiser, NATA general manager, is shown making the presentation. Mr. Hammel has also received recognition for his part in saving the life of a Flint auto worker following an accident last year.

BANISH WINTER CHAIN WOES!

HEAVY-DUTY

CHAIN REPAIR TOOL

for all sizes — all makes

HKP PORTER **LINKMASTER**

ESSENTIAL EQUIPMENT for FLEETS, GARAGES, TIRE SHOPS, SERVICE STATIONS

Fix *any* tire chain "standing up" with the fast, efficient LINKMASTER . . . from large heavy truck chains (to 13/32" diam. links) down to smallest car chains. No more lugging heavy chains to work-bench. Chain is laid out on floor; links are removed and replaced in seconds. Fully portable . . . as efficient on the road as in the shop.

For light truck chains (to 5/16") and all passenger car chains, LINKSEM is a rugged, lightweight tool of amazing power but low cost! Also LINKFIX for passenger car chains and a complete line of Porter Chain Cutters for hard chain.

See your jobber NOW and end winter chain headaches!

H. K. PORTER, INC. Somerville 43, Mass.

Porter Cutters Porter Pruners

PORTER-FERGUSON Autobody and Fender Repair Tools

Water and Lube Oil DO "MIX"... and the Product is *SLUDGE*

When you run into sludge troubles on any engine, you can blame the formation of "varnish" and sludge on water. Condensed water vapor and settled-out water are the major sources of sludge troubles in an internal combustion engine.

Get Rid of Water with MAGNUS METAFFIN

Simply add the required amount of Metaffin to your lube oil, and maintain that concentration in the oil. Condensed water is dispersed throughout the body of the oil, to be steadily evaporated from the breather plugs. It cannot accumulate in the crankcase. Metaffin insures top-notch lubrication constantly, because sludge is not formed, and narrow openings and lines cannot be clogged.

Let us show you how Metaffin pays for itself many times over in reduced repair and maintenance costs. Write now for details.

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Service representatives in principal cities.

Magnus

CLEANERS • EQUIPMENT • METHODS

CCJ News Reports

Continued from Page 27

of the industry by the general public. He further attacked the theory of unit weight being responsible for the health of the road, stating that "The real culprits of road wear in ninety nine cases out of a hundred, are the nature of the sub-soil, the quality of the construction, and the negligence of maintenance crews."

Got a $100 gas cap?

Ethyl Corp. of New York is looking for a gas tank cap that belongs to a 1928 Chrysler, and will pay $100 for it. They have a 1928 model, complete with a "redhead" engine and all fittings and equipment except that the cap for the gasoline tank is missing. The cap has on it, "Use Ethyl Gas," and is already considered quite a collector's item.

1951 Truck Trailer Shipments*

	August	Eight Months
VANS		
Insulated and refrigerated	245	2,739
Steel	56	.....
Aluminum	189	.....
Furniture	119	551
Steel	108	.....
Aluminum	11	.....
All other closed-top	1,512	17,901
Steel	1,012	.....
Aluminum	500	.....
Open-top	219	2,327
Steel	155	.....
Aluminum	64	.....
Total—Vans	2,095	23,518
TANKS		
Petroleum	392	3,222
All other	43	345
Total—Tanks	435	3,567
POLE, PIPE, AND LOGGING		
Single axle	90	933
Tandem axle	155	1,383
Total	245	2,316
PLATFORMS		
Racks, livestock and stake	202	1,257
Grain bodies	136	585
Flats (all types)	1,080	6,990
Total	1,418	8,832
Low-bed heavy haulers	396	2,391
Dump trailers	108	777
All other trailers	215	2,442
Total—Complete trailers	4,912	43,843
Trailer chassis	288	2,179
Total—trailer and chassis	5,200	46,022

*—Industry Division, Bureau of the Census.

Wages Show Increase

According to a study made by the Industrial Relations department of the American Trucking Associations, Inc., hourly wages of unionized trucking employees increased by 10 to 12 cents per hour in 36 per cent of the labor agreements negotiated in the second quarter of 1951 while 33 per cent of the agreements resulted in wage hikes of 13 to 15 cents.

The figures are based on results of the ATA study when 66 trucking settlements were reached during the second quarter of 1951.

New York's Highway Tax May Be Added to Rates

The Office of Price Stabilization has announced that the so-called "ton-mile" tax, levied Oct. 1 by the State of New York on each truck driven in the state, may be added by the trucker to his charges, if all conditions of Section 20 of the General Ceiling Price Regulation are met.

Congress Dates Set

The fourth highway transportation congress will be held in Washington May 6, 7, and 8 at the Mayflower Hotel. Albert Bradley, chairman of the National Highway Users Conference and executive vice president of General Motors will be in charge.

A preliminary announcement of the meeting indicates that the participants will discuss the many decisions made by the Federal government as they affect the nation's highway system. In addition, the problem of improvement and rehabilitation of the main highway routes of the nation will be studied at length.

Virginia Movers Organize

Household goods movers from Arlington, Alexandria and in Fairfax counties have formed the Northern Virginia Household Goods Carriers Assn. Alfred E. Crowe, of Vet Vans of Virginia, Inc., is president.

1951 Domestic Truck Factory Sales by G.V.W.*

	5,000 lb. and less	5,001-10,000	10,001-14,000	14,001-16,000	16,001-19,500	19,501-26,000	Over 26,000	Total
January	50,435	21,029	6,476	16,957	5,528	5,657	3,180	109,262
February	43,207	16,940	6,639	14,767	4,676	5,320	3,285	94,834
March	52,948	25,003	9,487	17,967	3,719	5,786	3,305	118,235
April	51,290	21,638	11,179	18,605	5,165	6,304	3,302	117,483
May	52,991	22,092	11,389	19,837	5,052	6,652	3,456	121,461
June	51,390	22,181	7,854	19,266	4,683	6,875	2,830	115,079
July	39,979	18,585	6,364	15,109	3,707	5,060	2,713	91,517
August	42,072	19,579	5,876	16,527	5,375	6,276	3,302	99,007
September	37,208	17,398	5,711	17,385	4,457	4,653	3,633	90,445
Nine Months—1951	421,520	184,435	70,975	156,440	42,362	52,583	29,008	957,323
Nine Months—1950	442,343	182,828	61,246	132,209	32,133	29,844	20,336	900,939

*—Automobile Manufacturers Association.

Taxes Affect Truck Prices

Manufacturers, wholesalers and retailers will be permitted, under a series of amendments issued by the Office of Price Stabilization, to reflect changes in certain manufacturers' excise taxes which became effective Nov. 1.

These changes recently approved by Congress mean higher prices for consumers wherever excise levies have been increased, but they will result also in lower prices in those instances where excise taxes have been reduced or eliminated by the new tax law. By no means are all the products affected by excise tax changes. Increased rates will apply to such items as auto and truck chassis and many auto parts. New taxes will be levied on a number of electrical appliances. The new taxes include:

Automobiles and motorcycles: 10 per cent of manufacturers' selling price—an increase of 3 per cent.

Gasoline, 2 cents per gallon—an increase of ½ cent.

Diesel fuel, 2 cents per gallon—a new tax.

Trucks, trailers, buses, parts and accessories, 8 per cent of the manufacturers selling price—an increase of 3 per cent.

Harvester Juggling

It would be a neat trick to squeeze all of International Harvester's new Phoenix proving ground into 6½ acres (CCJ, Nov. p. 41). Actually it is 6½ *square miles;* about 4160 acres.

Autocar-Reo Tie-In

Under terms of an unusual and strictly regional agreement, factory branches of the Autocar Co. in northern New Jersey are now handling sales and service of Reo trucks. Branches affected are in Jersey City, Paterson and Newark.

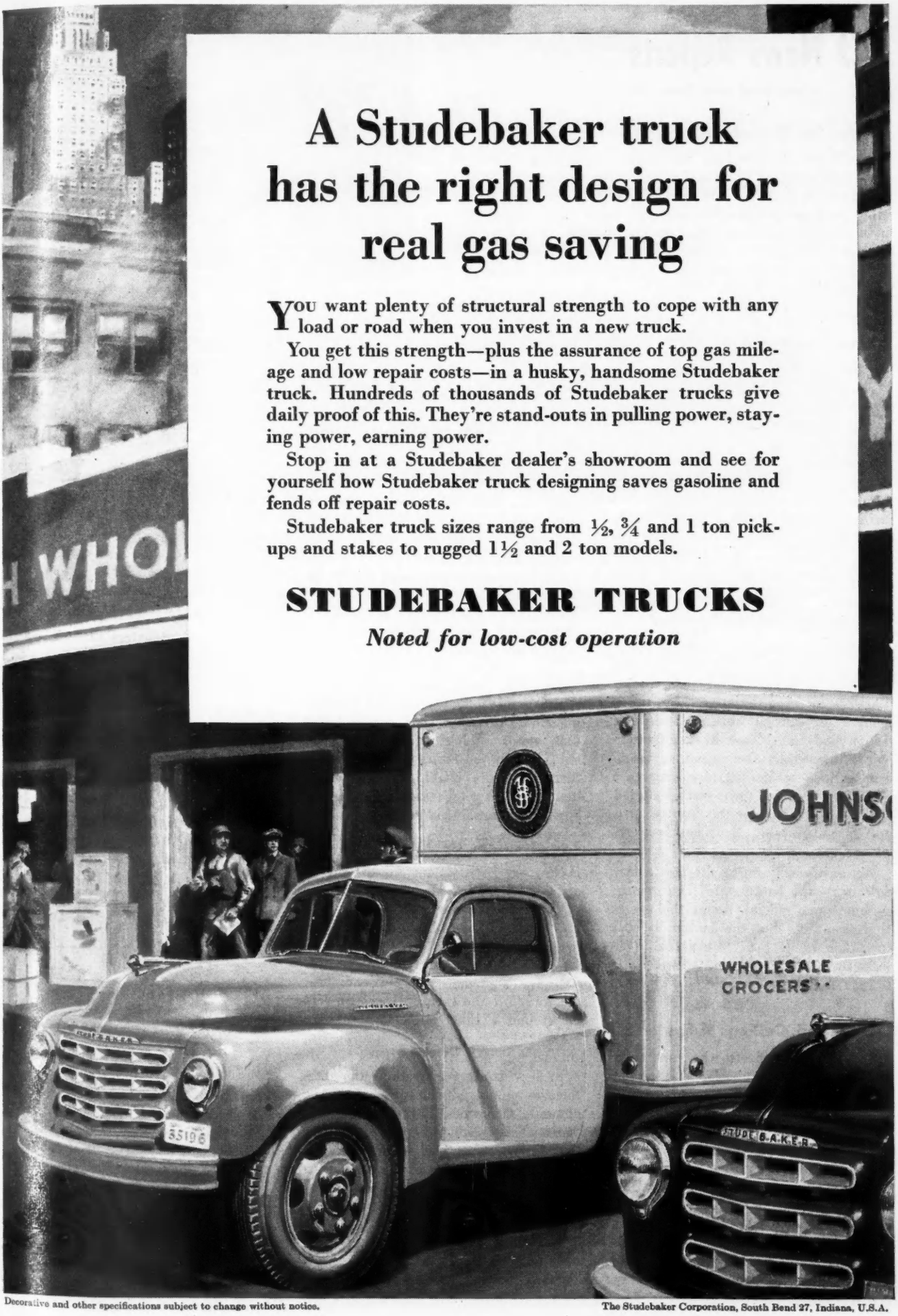
TTMA Convention Plans

The Truck Trailer Manufacturers Assn., meeting at the Shamrock Hotel, Houston, Tex., Jan. 28 to 30, will feature discussions by Walter Mullady, president of ATA, and representatives of NPA and the Detroit Tank Arsenal Additional highlights of the meeting will include a Texas Rodeo, a visit to San Jacinto battlefield and an optional air trip to Mexico City.

Drivers Honored

Honors were conferred on 75 drivers of Express Freight Lines Inc. of South Bend Ind. at a recent safety dinner sponsored by the company.

(TURN TO PAGE 160, PLEASE)



A Studebaker truck has the right design for real gas saving

YOU want plenty of structural strength to cope with any load or road when you invest in a new truck.

You get this strength—plus the assurance of top gas mileage and low repair costs—in a husky, handsome Studebaker truck. Hundreds of thousands of Studebaker trucks give daily proof of this. They're stand-outs in pulling power, staying power, earning power.

Stop in at a Studebaker dealer's showroom and see for yourself how Studebaker truck designing saves gasoline and fends off repair costs.

Studebaker truck sizes range from ½, ¾ and 1 ton pickups and stakes to rugged 1½ and 2 ton models.

STUDEBAKER TRUCKS

Noted for low-cost operation

Decorative and other specifications subject to change without notice.

The Studebaker Corporation, South Bend 27, Indiana, U.S.A.

CCJ News Reports

Continued from Page 158

Display Bus Introduced

The latest in traveling showrooms. Kalamazoo Coaches, Inc., manufacturer of Pony Cruiser buses, Kalamazoo, Mich., has developed a line of de luxe "Housecars" designed, among other purposes, for displaying merchandise about the country in a very convenient and economical manner. It is available with a self-contained electrical plant, pressurized water system, air conditioning, telephone, and many other features, including toilet facilities.

Convention Date Set

The National Automobile Dealers Association convention will be held in New York, Jan. 27-30, with headquarters at the Waldorf-Astoria Hotel. Business sessions and some of the entertainment will take place at the 34th St. Armory. The National Automobile Dealers Equipment Exhibition will be held at Grand Central Palace beginning on the 26th and closing on the 29th. In addition, there will be four special clinics on service problems.

ICC Safety Section Stymied

Safety activities have come to a virtual standstill while the ICC ponders how best to tailor its Bureau of Motor Carriers to meet the sharply curtailed budget for bureau work. No definite action had been taken by mid-November. Meanwhile, the personnel problem seemed to be partly taking care of itself with about three-score staff and field workers leaving the bureau payroll for other jobs. None has been replaced.

Action toward issuing the new safety rules was still "status quo" last month, to quote one official, under the unsettled situation. But the bureau is still unshaken in its plan to eventually release them as a guide for states to work toward a uniform code.

Tire Rental Ceilings Adjusted

Of interest to fleets who rent their tires on a mileage basis, is a recent order setting the ceiling prices of this service, issued by OPS. The order, (CPR 64) provides that the ceiling prices for this type of tire service shall be determined by employing basic rates prevailing during the period from Dec. 19, 1950, to Jan. 25, 1951. From this basis, the price may be adjusted up or down at regular accounting periods to reflect increases or decreases in the cost of rubber, rayon, cotton or other components.

Ton-Mile Question Avoided

When the members of the American Association of Motor Vehicle Administrators met in New York recently, they failed to take a definite stand against the practice of highway use or "ton-mile" tax laws.

They appointed a reciprocity committee which observers believed would return with a prepared statement condemning ton-mile taxes as a whole, mentioning New York in particular. Instead, the committee came before the convention with a much-modified report stating in effect that commercial carriers would benefit by complete reciprocity among states.

The statement was so worded as to leave little doubt as to the original stand of the committee on the ton-mile question. It reminded the convention that motor vehicle administrators do not control legislatures, but it stated that legislators should be warned of the danger in retaliation against neighbor states imposing a ton-mile tax.

Registrations Decline Slightly

New car registrations for the month of September were slightly below those of August, according to R. L. Polk & Co., Detroit. The estimate was made on the basis of registrations tabulated for 41 states, all that is available at this date for September. When complete, the total for the month is expected to be around 421,000 units as compared with 434,422 new cars licensed in August.

In new truck registrations the total for the month of September will be about 82,000 units, Polk officials indicated. This would be somewhat under the 87,646 new trucks registered in August. Registrations of new trucks for September were the lowest since last February when 78,581 units were tabulated.

The third quarter should approximate 253,000 trucks, as compared with 356,000 new units registered in the record-breaking third quarter of 1950.

LP Supply Will Expand

The Petroleum Administration for Defense has approved more than 200 applications for priorities assistance which will add approximately 86,000 barrels of light hydrocarbons (Butane, Propane, etc.) to the nation's daily production. Several pipelines for the transportation of liquefied petroleum gas are under consideration, one of which will move 10 to 20 thousand barrels a day to the Chicago area, PAD said.

Council Establishes Award

The National Safety Council has announced the establishment of an award to be made annually to practicing safety directors in the field of motor transportation. Known as the Marcus A. Dow Memorial Award, it will be presented by the National Council in cooperation with the Greyhound Corp., to the person who, in the opinion of a committee of judges has met prescribed qualifications and contributed outstanding services to the advancement of public safety.

Shown in the picture are (l. to r.): Paul H. Coburn, director of the Commercial Vehicle and Transit division, National Safety Council; R. A. L. Bogan, executive vice president of Greyhound Corp.; Ned H. Dearborn, president, National Safety Council, and R. L. Forney, general secretary of the Council.

(TURN TO PAGE 176, PLEASE)

Indianhead Truck Lines haul

300 extra gallons per trip

with transports made of COR-TEN

U·S·S COR-TEN saves about one ton of deadweight in this 7,000-gal. unit built by Butler Manufacturing Co., Kansas City, Mo. Carrying 300 more gallons of gasoline each trip it helps Indianhead Truck Lines to deliver more petroleum products at less cost throughout Minnesota, Wisconsin and in Iowa, Michigan, South Dakota and North Dakota. Indianhead has 74 units like this, most of them of COR-TEN.

PAYLOAD is the pay-off in today's highly competitive oil transportation business. That's why Indianhead Truck Lines of St. Paul, Minn., buy rugged, light-weight oil transports made of U·S·S COR-TEN.

Specially designed to take advantage of COR-TEN's characteristic properties, these units built by the Butler Manufacturing Company of Kansas City, Mo., are both lighter and stronger than transports of ordinary design made of ordinary steel. In the 7000-gallon Indianhead transport shown, the use of COR-TEN alone, saves almost one ton of deadweight.

Getting rid of this excess poundage permits Indianhead to haul 300 gallons *more* payload on each trip these units make. These *bonus* gallons hauled in place of deadweight build up an *extra* revenue of thousands of dollars annually for Indianhead.

COR-TEN cuts operating costs

Here's what Mr. L. A. Wilsey, President of Indianhead Truck Lines, says: "Elimination of deadweight is important to us because the difference between profit and loss in the oil transportation business is dependent on the saving of a few pennies on each haul—that's why we like Butler's weight-saving design and their use of COR-TEN."

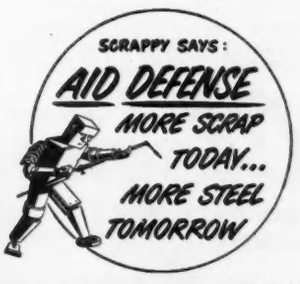
These COR-TEN units are rugged, too

Weight-saving has little value if strength is sacrificed. How do these transports made of COR-TEN stack up against ordinary transports in day-after-day, over-the-road hauling?

Indianhead has several "million-milers" in its fleet of COR-TEN Transports. Many of them have operated *without a minute's down-time* due to tank failure. Says Mr. Wilsey, "On the basis of our records, these transports are more economical to operate than any others we know about. We've bought them again and again because they give us maximum payload and a minimum of maintenance."

Write us and find out how little it costs to build your equipment lighter, stronger and more profit-producing with U·S·S COR-TEN.

AMERICAN STEEL & WIRE COMPANY, CLEVELAND · COLUMBIA STEEL COMPANY, SAN FRANCISCO
NATIONAL TUBE COMPANY, PITTSBURGH · TENNESSEE COAL, IRON & RAILROAD COMPANY, FAIRFIELD, ALA.
UNITED STATES STEEL COMPANY, PITTSBURGH · UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST
UNITED STATES STEEL EXPORT COMPANY, NEW YORK



USS TRADE MARK

U·S·S HIGH STRENGTH STEELS

U·S·S COR-TEN · U·S·S MAN-TEN · U·S·S TRI-TEN

1-1396

UNITED STATES STEEL

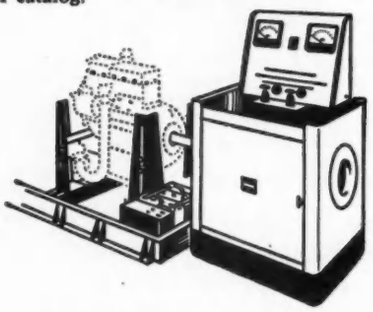
These 3 Tools Slash Maintenance Costs!

For Winner of National Truck Shop Excellence Award

Clayton KERRICK STEAM CLEANER

World's finest all-purpose steam cleaning machine, made in three sizes and in stationary, portable and trailer types; gas or oil fired. Models available with gasoline engine drive for use where electric power is not practical. Capacities range from 90 to 150 gallons of balanced cleaning solution per hour, at selective pressures up to 150 p.s.i. See your jobber for demonstration, or write for catalog.

Illustrated is the new Model HR Clayton Kerrick Kleaner, combining a 150 gal. per hr. steam cleaning machine and a 275 gal. per hr. hot or cold rinse unit. Available in stationary, portable and trailer types.



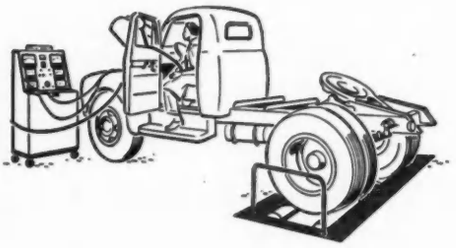
Models 17-500 CE (illustrated above) and 17-300 CE have direct reading horsepower and speed meters, requiring no computations or combinations of readings. Write for complete catalog on all models, with power curves.

Clayton ENGINE DYNAMOMETER

Invaluable to engine rebuilders, the Clayton Turbo-closed System Absorption Dynamometer provides for the run-in and adjustment of new or rebuilt engines under actual road conditions before being mounted in the vehicle. Torque load can be maintained indefinitely, or changed instantly. Available in several models to meet specific horsepower range requirements.

Clayton CHASSIS DYNAMOMETER

Enables the entire mechanism to be quickly and accurately checked while operating under actual road driving conditions without leaving the service stall. Eliminates guesswork in trouble shooting: replaces hazardous and costly road tests; proves workmanship; assures peak performance adjustments and insures customer satisfaction. Four model combinations. Send for catalog.



With the rear wheels on the rolls, the car engine is started. By portable hand control, the operator creates every possible road condition and observes the performance. In less than 15 minutes, 35 vital performance checks are accomplished.

Clayton MANUFACTURING COMPANY
EL MONTE, CAL.

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638 North Albany Avenue,
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Detroit Trading Area:
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Detroit 4. WEbster 3-2442

New York-Philadelphia:
Burrshell Company,
3701 Tonnele Ave., N. Bergen, N. J. UNion 7-2624

Northern Ohio:
11304 Superior Avenue,
Cleveland. GA 1-1280

Cincinnati Trading Area:
1774 Mentor Av. (Norwood)
Cincinnati 12. REdwood 9173

Atlanta Trading Area:
Unit 6, Bldg. A,
710 Murphy Avenue,
Atlanta, Ga. RAymond 0766

CCJ Reports

Continued from Page 160

Fair Plans Develop

Full scale preparations for the Chicago International Trade Fair, which opens March 22, are under way. Chicago's Navy Pier has been selected as the location for the show. Invitations have been extended to manufacturers and merchants of all nations to participate as exhibitors, advising them to make early reservations.

The U. S. House of Representatives has endorsed the Chicago International Trade Fair and smoothed the way for exhibitors by adopting a resolution to admit all exhibits duty free.

Twin Coach Buys Rights

Twin Coach Co., Kent, Ohio, has announced acquisition of exclusive American manufacturing and sales rights to the complete line of Leyland Diesel Engines, produced by Leyland Motors Limited of England.

These will be sold in this country under the name of Fageol-Leyland and will be completely "Americanized" with SAE standard threads incorporated into the design of the engines as well as in all accessories and fittings. Engineering of American production engines will be handled by Fageol Products Co., Kent, Ohio, a Twin Coach subsidiary, which currently manufactures Fageol gasoline and propane engines.

The agreement covers a full line of engine models with power ranges from 90 to 200 hp. All engines are of postwar design and incorporate many features which result in low weight per horsepower, in adition to long life and high efficiency, the company states.

Rubber Shipments Decline

Manufacturers' shipments of passenger casings during September decreased 7.62 per cent to 5,205,197 casings from 5,634,475 in August, according to the monthly report of The Rubber Manufacturers Association, Inc., New York. Shipments of truck and bus casings in September decreased 5.00 per cent to 1,451,848 casings from 1,528,195 casings in the previous month. Production increased to 1,543,469 casings from 1,527,718 casings the month before or an increase of 1.03 per cent. Inventories totaled 1,149,043 casings, an increase of 7.88 per cent from the end of the previous month when 1,065,074 casings were in stocks.

(TURN TO PAGE 178, PLEASE)

If Your Brakes Are Costing You Money...

THESE TRUCKS ARE BACK FOR ANOTHER BRAKE JOB— WHAT GIVES?
THE POWER BRAKES JUST AREN'T BIG ENOUGH TO HANDLE THE LOADS WE CARRY!

Are your power brakes designed for your trucks or for the loads you carry?

Naturally, they should be matched to the load. For example, if a 2-ton truck is hauling at rated capacity, it can probably get by with the power brakes it has. But, if that same 2-ton truck is hauling heavier loads, or running on hilly or rough terrain, the chances are it needs "stepped-up" power braking.

You can easily spot under-braking on your trucks! If your linings are wearing too fast . . . if your trucks are hard to stop . . . if your drivers are complaining, it's time to see your Bendix* Vacuum Power Brake dealer about Load-Rating your brakes.

Only Bendix* Hydrovac* has a range of models wide enough to let you pick a power brake to exactly fit your load. It's Load-Rated! *REG. U. S. PAT. OFF.

It's Time to MATCH the BRAKING to the LOAD with Bendix HYDROVAC

THE "Load Rated" POWER BRAKE!

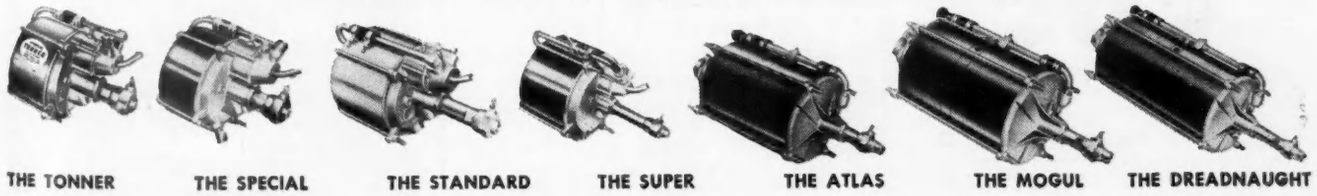
Bendix SOUTH BEND

PRODUCTS DIVISION INDIANA

Export Sales: Bendix International Division, 72 Fifth Avenue, N. Y. 11, N. Y. • Canadian Sales: Bendix-Eclipse of Canada, Ltd., Windsor, Ontario, Canada

Bendix AVIATION CORPORATION

A MODEL FOR EVERY LOAD FROM ½ TON TO THE BIGGEST!



THE TONNER | THE SPECIAL | THE STANDARD | THE SUPER | THE ATLAS | THE MOGUL | THE DREADNAUGHT

HALLOWELL

HEAVY-DUTY TRUCKS FOR TOUGH JOBS

Tough jobs are easy with these sturdy, 2-wheel HALLOWELL Trucks. All-welded, all-steel construction minimizes weight (heavier model #738 weighs only 50 lbs.), cuts maintenance costs, lengthens truck life. Ribbed, angle-form steel nose carries heavier pay loads without bending, reinforces "UNI-TRUK" at point of severest stress. Two popular models: #738 with 8" wheels and braced legs; #734 with 6" wheels, no legs.

Write for Bulletin 718-2.

®

HALLOWELL

MATERIALS HANDLING EQUIPMENT

—SPS—

STANDARD PRESSED STEEL CO.

JENKINTOWN 5, PENNSYLVANIA

CCJ Reports

Continued from Page 176

Scrap Drive Advances

In response to appeals made by several government agencies, the industry-wide drive for neglected scrap metals has every indication of success. Many non-metal manufacturers have conducted plant surveys to locate obsolete materials, tools, machines, etc., while metal-using manufacturers have discovered many items-in-process and other metallic items that could be scrapped.

For example, General Motors collected approximately 16 million pounds or more of non-production scrap metal in the past month. This brought GM's total contribution to the national scrap drive of 15,600 gross tons. This is in addition to the production scrap which finds its way back to the steel mill as a part of the regular factory procedure.

In the truck fleet industry, renewed efforts are being reported on behalf of the scrap campaign.

Leasing Suits Continue

There are three major lawsuits in the news, both against the May ruling of the Interstate Commerce Commission governing vehicle leasing and interchange. The Movers' Conference of America has begun action at Detroit, Mich. In Birmingham, Ala., the American Trucking Associations and individual companies have been fighting the issue. In Terre Haute, Ind., Eastern Motor Express Inc. has started a similar legal scrap.

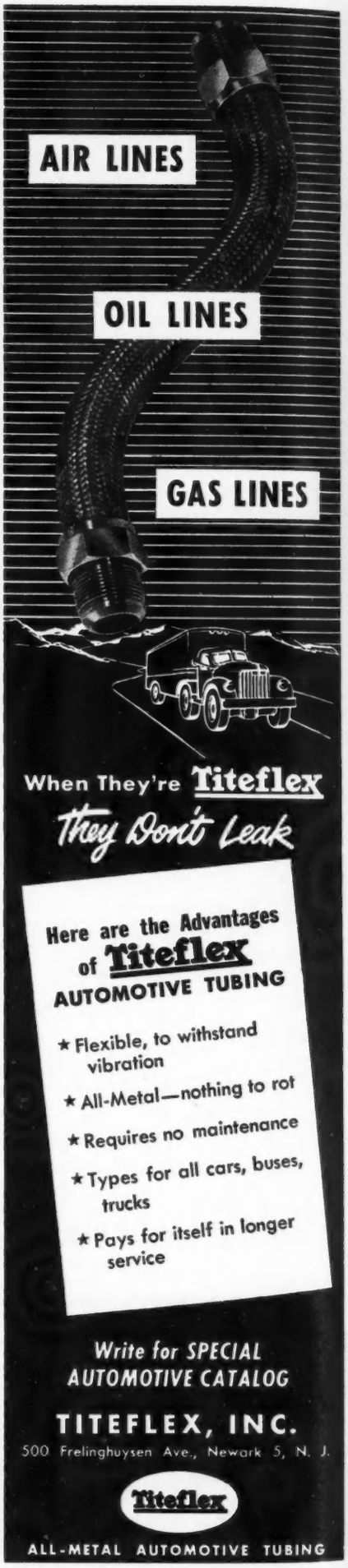
The ICC asked the Birmingham court to consolidate all these in one hearing in the Indiana federal court, but the request was denied. In the meantime, 82 railoads have intervened in support of the ICC. The fight continues.

Truckers Back Toll Levy

In reply to an attack made recently against the toll charges for trucks on the New Jersey Turnpike, the New Jersey Motor Truck Association said, "The toll rates for trucks on the New Jersey Turnpike are eminently fair. These rates, recommended by distinguished traffic engineers, recognize that New Jersey is a corridor state in the movement of commercial traffic between New York and Philadelphia and other Eastern industrial cities. The turnpike could not be made a self-sustaining road without this commercial traffic."

END

Please Resume Reading Page 31


AIR LINES
OIL LINES
GAS LINES
When They're Titeflex
They Don't Leak
Here are the Advantages of Titeflex AUTOMOTIVE TUBING
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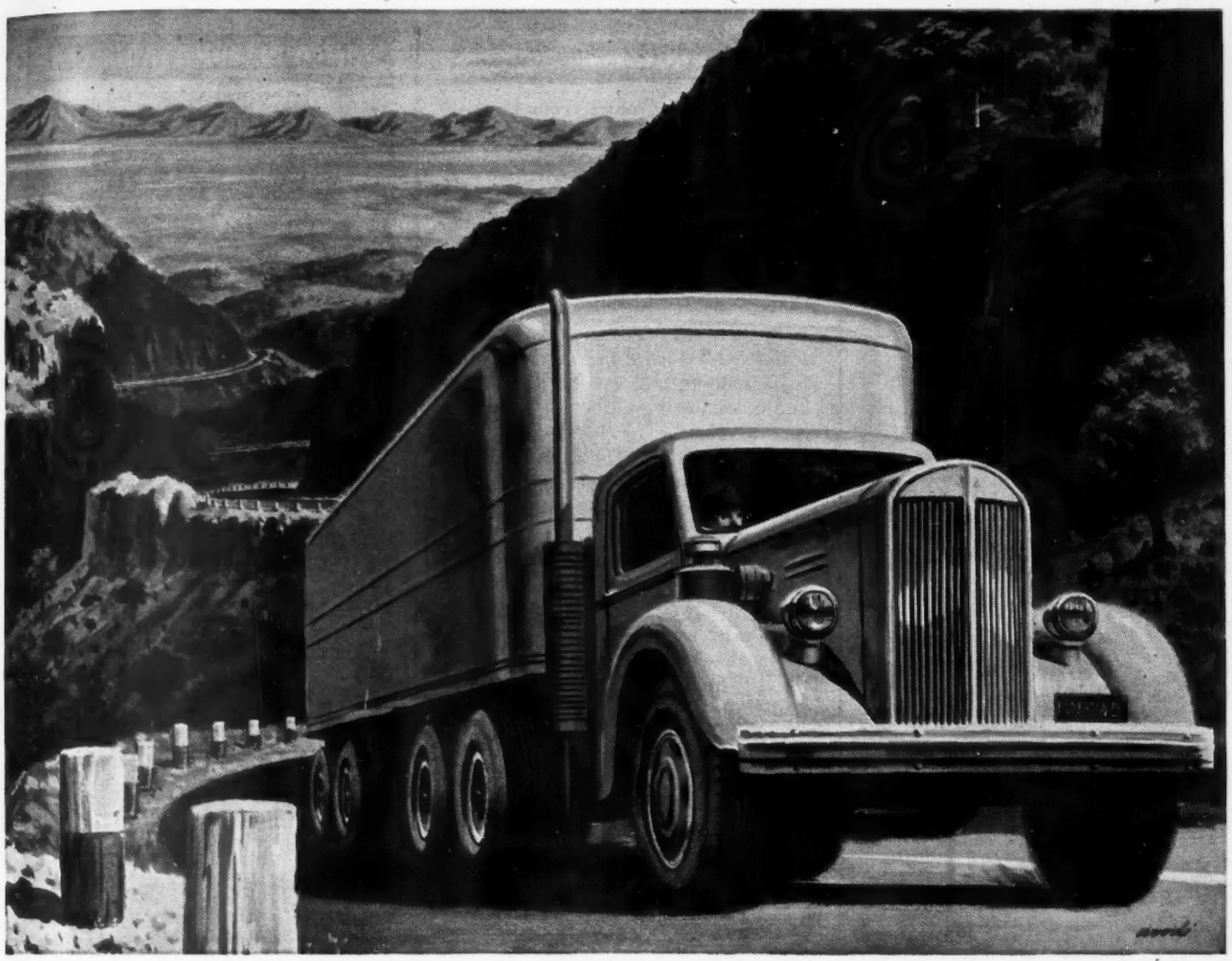

tough jobs—EVERYWHERE demand AMERICAN BOSCH performance

Hauling heavy loads through broiling desert heat and cold mountain passes is all in the day's work for many over-the-road truckers. Dependable, fast schedules are their stock in trade—and that's why you'll find American Bosch products on the job.

Many of the Diesel engines used to furnish the tremendous lugging power in these operations are equipped with American Bosch fuel injection systems —pumps, governors and nozzles that deliver the fuel . . . precisely timed and accurately metered to each engine cylinder, pressure atomized for maximum combustion efficiency.

Other American Bosch products, too, contribute to performance and safety—heavy duty generators and voltage regulators that furnish the required current for batteries and the numerous electrical accessories—electric windshield wipers that provide constant clear vision for drivers regardless of engine speed or load.

Over 40 years of pioneering design, precision manufacture and thoroughgoing service have built the American Bosch reputation for dependability in the toughest going. Continuous research, development and field engineering assure that this reputation will grow even stronger through the years. American Bosch Corporation, Springfield 7, Mass.

AMERICAN BOSCH

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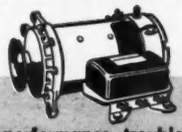

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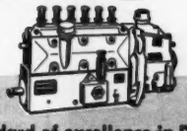

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For Coal—Other Material

CEMENT SPREADERS
For Soil Cement Roads

HERCULES
STEEL PRODUCTS CORPORATION
Galion, Ohio

New Products

Continued from Page 80

P104. Engine Heater

Vapor Heating Corp. Chicago, Ill., developed an answer to the problem of protecting bus and truck engine blocks from freezing, and keeping them warm, ready to go, in the winter time.

This new, oil-fuel Vapor Parking Lot Heater is all housed in a small 4 x 4 ft metal building and weighs 1500 lbs, it can be easily moved about from one point to another on the lot and is a complete package. The heater puts out 250,000 BTU's per hour, enough heat to protect 10 buses or 20 trucks during cold weather.

In the unit is a Vapor-Clarkson Hot Water Heater, when the main switch is on the hot water from the heater is continously circulated through the buses and trucks connected up to the system. One, 1½ hp electric motor operates the circulating pump for the system, the

hot water heater, the forced draft blower, and fuel of the heater. Fifteen lb circulating pressure is maintained in the system to insure reaching all parts of the motors.

When in operation, and the circulating water temperature drops to 140 deg F. the heater is automatically fired up and continues to operate until the water in the system reaches 170 deg F., then the fire is automatically turned off, the centrifugal pump continues, servicing all the engines and hose connected. and the hoses which are not being used. until the temperature again drops to 140 deg. When full-on running steady, the Vapor Heater uses about 2½ gal of fuel oil per hour, about one-half the fuel consumed by an idling bus or truck motor.

(TURN TO PAGE 182, PLEASE)

Classified Advertisement

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An Aggressive Distributor . . . to sell trucking product nationally. Sold in one quarter of U. S. now. May grant opportunity to manufacture. . . . Automotive firm preferred but not necessary. Reply Box 1937, Portland, Maine.

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permanent piston restoration calls for an INSIDE JOB!
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The PUROLATOR
Micronic OIL FILTER
with the NEW DIRT CHECK WINDOWS
SAVES TIME . . . CUTS OPERATING COSTS

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HEAVY DUTY
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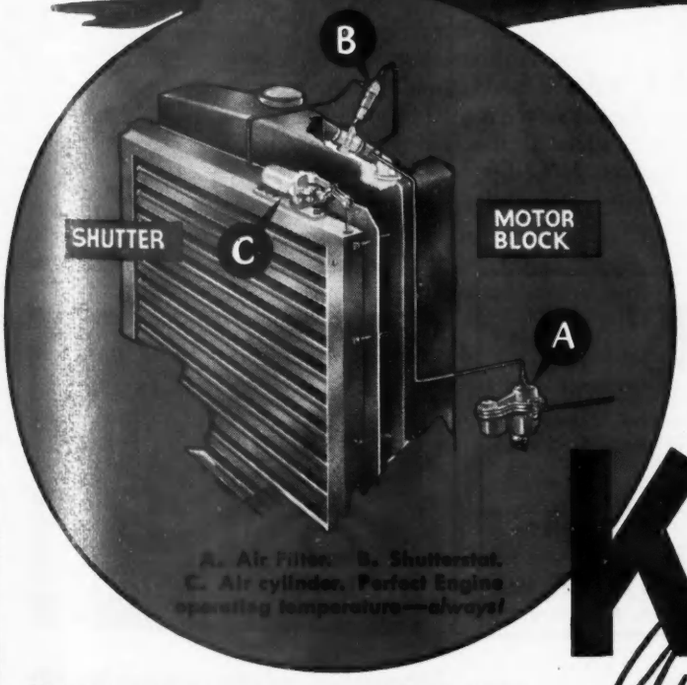
GASOLINE ELECTRIC
GENERATING SETS
DUPLEX
TRUCK COMPANY
LANSING, MICHIGAN

KYSOR RIDES UP FRONT

to SAVE FUEL-CUT MAINTENANCE

on huge FREIGHTLINER Fleet!



Heavy loads and steep mountain grades are all in the day's work for more than 400 big Consolidated Freightways trucks.

Kysor is proud to "ride up front" with Consolidated . . . proud of its record of service in fuel savings and lowered maintenance through perfect engine operating temperature control.

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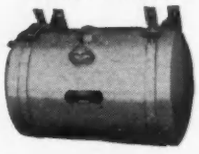
KYSOR

Automatic SHUTTERS

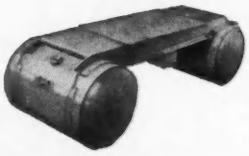
KYSOR HEATER CO., CADILLAC, MICH.

SADDLE TANK

CYLINDER TANK



TOOL BOX UNIT



SNYDER SAFETY TANKS

All three Snyder Safety Tanks pictured here embody all the safety features that assure the utmost safety for the fleet operator, driver and cargo. Snyder "Balanced Construction" design, insures lighter weight, streamlined yet stronger tanks... Tanks built to stand heavy loads, high speeds and the shock of the road. The Snyder safety diesel tank has all the safety and construction features of the gasoline tank and is equipped with larger outlets to accommodate the heavier fuel lines.

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One Dual Spiral Expansion Reamer does the work of five ordinary reamers! Its greater expansion range saves you money. Model 85 AS Dual Spiral Expansion Reamer plus 3 extra sets of blades fits piston pins and king bolts in 34 car and truck models. Chrome steel blades can be resharpened several times. Mandrel is in 100% contact against the entire length of blade, at every expansion range. No flexing or springing—no bell mouthing. Exclusive dual spiral action cuts and burnishes in single operation.

Write for Reamer Bulletin, Lempco Products, Inc., 5490 Dunham Road, Bedford, Ohio

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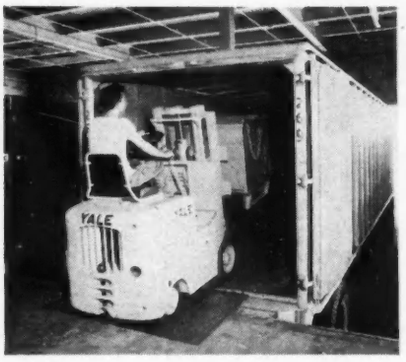
V BAR-REINFORCED
The Best Buy in
TIRE CHAINS

New Products

Continued from Page 180

P105. Trucker's Truck

A new series of gasoline fork trucks designed for operation in and around truck or trailer bodies has been announced by the Philadelphia, Pa., division of Yale & Towne Mfg. Co. Main advantages of the new line claimed by the manufacturer are its light weight, low overall height and close maneuverability.



P106. Battery Chargers

Three new model "Porto-Fast" battery chargers have been added to the line made by Marquette Mfg. Co., Minneapolis, Minn. Model 205, it is mounted on 8-in. rubber tires with a

DRIVERS' Daily Log Book BMC 59

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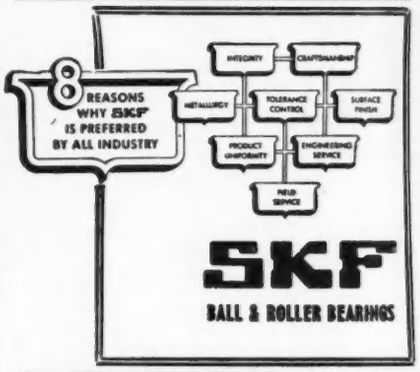

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New Products

Continued from Page 182

1¾-in. tread. The housing is cylindrical, with ventilation ports at the top. Controls for the charger are mounted on top. Brackets mounted at the ends of the rolling handle on the sides of the charger hold the electrodes and extension cord when not in use.

Two other models are designed for battery boosting at a fast-charge rate, or for overnight or longer periods with one or more batteries. Controls are so arranged that the units operate automatically.

P107. Nozzle Testers

Bacharach Industrial Instrument Co., Pittsburgh, Pa., has expanded its line of nozzle and injector testing equipment to include several sets suitable for testing injection units of medium and large bore and stroke diesel engines. The combination set comprises specially-developed and simplified fixtures, the Bacharach nozzle test pump, and suitable fuel line connectors.

The nozzles and injectors which can be tested with this combination set include: GM 278 and 278A Injectors, American Bosch T, U and V Size Nozzles and Types AKA, AKB and AKK Nozzle Holders, Bendix-Scintilla C and D Size Nozzles and Types HCA, HCL, HCU, HCV, HDA, HDV.

END

Please Resume Reading Page 83

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